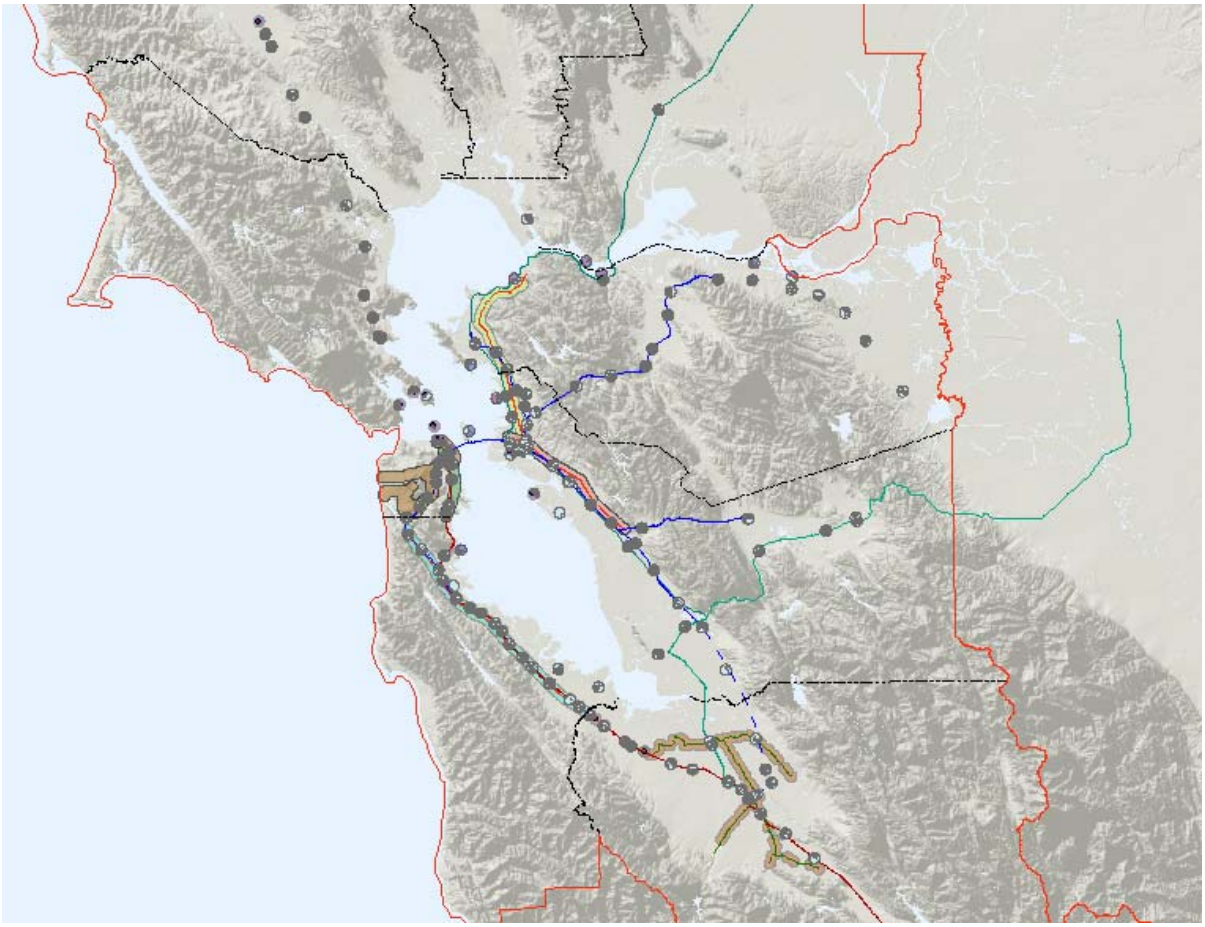
Monitoring Policy Based Forecasts for the San Francisco Bay Area



DRAFT (4/19/07)

Executive Summary

Monitoring Policy Based Forecasts for the San Francisco Bay Area is a formal review of the assumptions and results from ABAG's long term forecast, *Projections 2005*. While *Projections* 2007 was recently published, preliminary analysis of *Projections* 2005 showed that the assumptions were consistent with the land use information and policies obtained from local governments.

In a departure from previous regional forecasts produced by ABAG, *Projections 2003* was the first regional "policy-based" forecast. It was developed using assumptions designed to help guide Bay Area growth, as compared to ABAG's traditional biennial *Projections*. When that forecast was adopted, it was understood that future forecasts would be examined to insure that their assumptions were grounded in reality.

This report fulfills an agreement made between ABAG and MTC staff, and staff from the Environmental Protection Agency and the Federal Highway Administration. Monitoring of the assumptions and results for each forecast used in the Regional Transportation Plan (RTP) is designed to ensure that the forecast provides a reasonable basis for air quality conformity modeling.

A fundamental premise of the *Projections* forecast is that, as jurisdictions adopt Smart Growth principles in General Plans and Specific Plans, a greater proportion of future growth will take place within Transit Oriented Development (TOD) or transit accessible development areas.

Data collected on TOD areas in the region show that in 2000 about 25 percent of all households and 39 percent of all jobs were near a transit station or within a major transit corridor. The *Projections 2005* forecast indicates that 30 percent of all households and 40 percent of all jobs will be near transit or within a major transit corridor by the year 2030.

As shown in our earlier report, however, many jurisdictions have already begun to include some type of smart growth measures. Regional policies continue to include an increased emphasis on Smart Growth. For example, MTC is supporting increased emphases of Smart Growth assumptions in its 2009 RTP funding decisions. Recently passed infrastructure bonds are likely to be awarded to projects consistent with regional goals. Nevertheless, changes in existing land use patterns are expected to be small particularly in the early years of the forecast period. Given the long lead times in the development cycle, and the complicated process of updating local plans, changes in local plans are bound to be slow.

Of the 109 local general plans in the region, the land use element is twenty years or older in 5 jurisdictions, between fifteen and twenty years old in 7 jurisdictions, and ten to fifteen years old in 24 jurisdictions. Almost every jurisdiction will revise their General Plans during the forecast period, providing an opportunity to emphasize development near transit in infill areas. Consequently, changes to local land use policies will continue to occur during the forecast period.

Existing land use plans for transit corridors support *Projections*. With some caveats, we conclude that *Projections* is reasonable and well grounded in existing policies. First and foremost, we recognize that adopted policies do not always materialize for a variety of reasons having to do with the local political environment, site planning considerations, interest rates and so on. Consequently, even given existing planned support for *Projections* monitoring will continue. Without ongoing local efforts to execute local plans, and without ongoing efforts to improve those plans through the implementation of Smart Growth policies,

the net residential development in the corridors in particular may fall short of *Projections* expectations.

Introduction

Every two years ABAG will publish a report entitled "Monitoring Policy Based Forecasts for the San Francisco Bay Area," pursuant to Federal Highway Administration and Environmental Protection Agency requests for a detailed regional land use policy analysis that supports the Smart Growth assumptions of ABAG's *Projections*. The report is designed to ensure that ABAG's policy-based *Projections* uses realistic assumptions and provides reasonable results, given the broad constraints of local jurisdictions' adopted plans.

Since 1972, ABAG has produced a regional population and employment forecast for the San Francisco Bay Area, published on a biennial basis. As the official forecast of the Bay Area, *Projections* is used by other regional agency and local governments for planning purposes. As with most forecasts of this kind, macroeconomic assumptions, population patterns and trends, employment data and detailed land-use modeling are principal determinants of the Bay Area forecast. Beginning with *Projections 2003*, ABAG introduced explicit assumptions into the modeling framework that produces this forecast.

Since the primary reason that ABAG produces a forecast is so that other regional agencies, including the Metropolitan Transportation Commission (MTC) and the Bay Area Air Quality Management District (BAAQMD), can make policy and project funding decisions, the reliability of the forecast is essential. *Projections* is also widely used for local land-use planning and by individuals and organizations looking at their long-term objectives in the Bay Area. Given the prominent role *Projections* plays in regional policy decision-making, this Monitoring Report will provide ongoing analysis to ensure the continuing high level of accuracy in *Projections* over time.

Within the forecast, the gradual adoption of Smart Growth supportive land-use policies are assumed to take place throughout the Bay Area and modeling parameters are adjusted to take these policies into account. While most Smart Growth policies are assumed to begin to make differences in the distribution of housing and employment starting in the 2015 period, ongoing monitoring of existing plans around the region are necessary to track the adoption of Smart Growth policies, "ground-truthing" *Projections* as it progresses toward its forecast horizon.

Split into six chapters, this Monitoring report first details the methodologies used in the regional analysis for the sixteen Bay Area corridors in **Chapter 1**. **Chapter 2** is the analysis of corridors. **Chapter 3** is a market analysis, comparing *Projections* to Plans, assessing the pattern of recent residential development, and an analysis of potential future development. **Chapter 4** discusses the adopted Smart Growth Principles, its implementation in *Projections*, and the supporting role of state, regional and local policies in fulfilling those Principles. **Chapter 5** contains a discussion of countervailing trends and the conclusion. Finally, **Chapter 6** introduces the *State of the Region* program which will provide an ongoing set of benchmarks to assess existing socio-economic conditions and near term prospects.

Chapter 1: Databases and Methodologies

ABAG collects a wide variety of economic, existing land use and planned use data as part of its effort to insure that its forecasts are reliable indicators of future trends. Three of these currently used databases, the Existing Land Use Database, the General Plan Basemap Project and the Regional Plan Database, are highly labor-intensive and require continuous maintenance. In this chapter, we discuss the methodologies behind their creation.

Existing Land Use Database

The Existing Land Use database is updated every five years as part of ABAG's forecasting and hazard mitigation work. In April 2005, data were purchased and staff processed the data during the summer of 2005. data processing was performed at a parcel level. In this update, additional staff efforts were made in order to provide data for the monitoring program, which led to a much more complete parcel-level picture of existing land use conditions in the Bay Area.

The Existing Land Use Database currently contains year 2000 and 2005 parcel data compiled from county assessors' files. The 2000 file only contained partial GIS shape file coverage at the parcel level for six counties. GIS shape files were obtained from local jurisdictions. In order to construct a database that allows interval level analysis between the two periods, data were purchased from a commercial vendor and were also obtained from local jurisdictions to fill in gaps from the vendor's sources. For several millions of parcels in the region, ABAG now has data relating to:

- the number of units built on each parcel,
- the land use code for each parcel, describing for assessor's purposes what land use exists on the parcel
- a generalized land use label describing what the property contains (residential uses, commercial uses),
- the year the property was developed
- the value of the land
- the improved value of the land
- each parcel's sale price, when applicable
- each parcel's sale date, when applicable

Extensive editing through database and GIS software was required to make the data useful. Because of the unevenness of the data quality and completeness, all counties were processed with methodologies unique to each county, principally because every county uses its own land use code to describe land use characteristics. Nevertheless, staff built a consistent regional database by ensuring, as much as possible, that a common set of fields used to describe each parcel was developed for every county.

General Plan GIS Basemap

In the summer of 2005 ABAG contacted every city and county in the region to acquire the current version of their general plan map. The priority for this data gathering effort was to acquire shapefiles developed by the jurisdiction as these would be the quickest to integrate into a regional dataset. Where jurisdictions either did not have their general plan map in a GIS compatible format or ABAG was unable to acquire the data files prior to a set deadline, ABAG used the most recent version of the general plan (printed map or image file) that could found and assigned the general plan land uses to parcel shapefiles to generate a shapefile for that jurisdiction.

For some jurisdictions, ABAG was only able to acquire zoning information in a GIS compatible format. When this occurred, ABAG would find out from the jurisdiction which zoning designations applied to each general plan category and made the appropriate changes to the file. The City and County of San Francisco was the exception as it does not have general plan categories that accommodate all of its zoning designations. ABAG incorporated general plan categories into the San Francisco shapefile where it was able to determine the zoning designations that applied to the category from the city's general plan. It was possible to directly translate zoning designations for most of the housing categories and a few commercial categories for the city and this step covered more than two-thirds of land within San Francisco. For the next step, ABAG grouped the remaining zoning designations into commonly used general plan categories to complete the file. Planning staff from San Francisco reviewed the draft general plan shapefile for the city and suggested modifications that ABAG incorporated into the file.

The regional general plan shapefile is to be used as part of the effort to track planned land use changes in the region. The purpose of this tracking effort is to determine whether or not jurisdictions are altering their plans in ways that accommodate the policy-based *Projections* developed by ABAG. Once the shapefiles for each jurisdiction were complete, the individual cities and counties were merged together to create both county specific and regional general plan files.

The acquisition of specific plan information occurred near the end of the process for building the regional general plan shapefile. As a result, while a large number of GIS compatible shapefiles were either acquired or created for the region, ABAG is undertaking the quality control and merge processes necessary to complete a regional shapefile for this information.

Regional Plan Database

In the past, ABAG collected land use policy information through a Local Policy Survey of local plans showing local land use potential at a census tract level. The Survey was most recently updated in 2004. The information in the database represents local jurisdictions' expected long term growth potential. These data are collected and maintained as part of ABAG's forecasting work. It may also be used as a cross check for monitoring purposes.

The database is GIS enabled, and can depict local General Plan designations for the region. It was originally created over a number of years as an attempt to improve the information collected from the Local Policy Survey. Local data are kept in various types of software, and land is identified using cities individual classification systems. Collecting and unifying the data for the entire region is a difficult and time consuming undertaking, which requires regular maintenance. Over the first nine months of 2006, ABAG staff painstakingly assembled information about every General Plan designation in the Bay Area, digitized the data, sometimes from photocopied maps or other crude data, and assembled each jurisdiction's plan into a region wide GIS database.

Details of every General Plan designation and information of available Specific Plans were entered into a relational database spanning a wide range of development potential variables. Since the data as they were represented in the database had to mirror the form and content of the data collected from local governments, a wide variety of possible variables was used to capture the intent of these plans.

The Local Policy Survey database was last used as the basic land use information for *Projections* 2003 and *Projections* 2005. The development of the general plan database has allowed ABAG to incorporate that information into our modeling efforts.

Monitoring Components

The monitoring work plan covers three broad areas. First, collecting detailed information and organizing that information into a usable database with GIS attributes. Second, conducting a detailed analysis of the databases for the sixteen transit corridors staff have identified. Third, conducting a comparative transit corridor analysis of general plans across the region and evaluating the consistency of those changes with smart growth goals and forecasts. Transit corridors can be either a collection of station areas or, in certain cases, continuous corridors. Land uses within a half-mile buffer of the radius for station areas and within a half-mile of the street centerline for continuous corridors were identified as comprising the corridor land uses.

Beginning in winter 2006, staff created a Regional Plan Database to incorporate adopted plans from every city and county jurisdiction in the Bay Area. Construction of the database was an extensive undertaking that involved contacting 109 jurisdictions across the region, often with follow-up calls and visits to local jurisdictions. In some cases, written agreements were signed contracting ABAG to only use the data as permitted by the jurisdiction. Examples of cities that wanted a signed agreement include San Jose, Brentwood, and Richmond. Staff spent several months tabulating the data using a custom interface created for data entry.

For each General and Specific Plan, information was gathered for each individual land use designation. Typically, a General Plan will specify what land uses are allowed and will

provide general information about the intensity of uses allowed under each designation. The data collected in the Regional Plan Database included:

- the label applied to each designation by the jurisdiction (e.g., Single-Family Up to 10 units/acre)
- generalized use information to allow cross-jurisdictional comparisons (e.g., "commercial," or "residential"),
- lot coverage requirements,
- information on whether each land-use allowed residential uses,
- the total number of dwelling units allowed in a designation
- the total number of persons allowed or persons per acre, when available
- the type of development that was allowed
- if mixed uses were allowed and applicable Floor Area Ratios
- Employment potential and a whether conditional uses such as offices were permitted, and
- affordable unit bonuses, accessory units and density bonuses were incorporated into each land use.

Updated data concerning similar kinds of characteristics for Specific Area plans were collected and ABAG has a wide range of data related to how up to date plans are, when they were adopted, amended, and when they are intended to sunset. Data exist for every single jurisdiction in the Bay Area, although the quality of the data varies greatly by how current the local plans are and their comprehensiveness across the broad range of policy areas.

Analytical Overview

The analysis of Bay Area corridors involves several steps, each of which is described in detail below. The analysis proceeds principally from a comparison of *Projections* based number of dwelling units in each corridor to the number of units that each jurisdiction's General Plan and other plans can reasonably support. This comparison will yield a policy based benchmark to ensure that *Projections* remains grounded. Finally, a retrospective analysis will be conducted on building activity through the Existing Land Use database, to ground-truth both Plans and *Projections*. The following subsections deal with methodological issues associated with the first two steps:

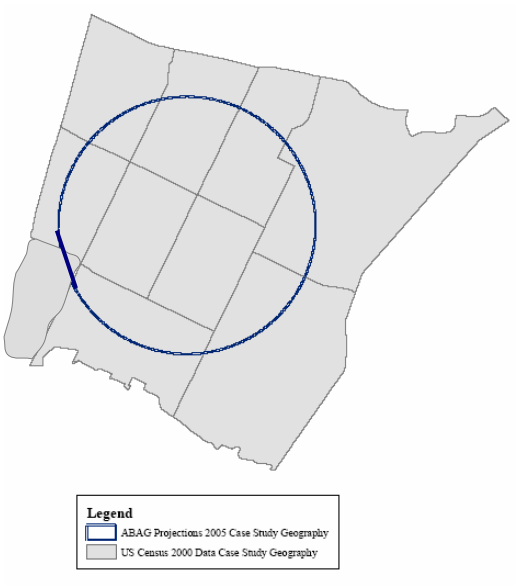
(1) a methodology for calculating *Projections* based station area households and dwelling units, and

(2) a methodology for existing planned land use development potential

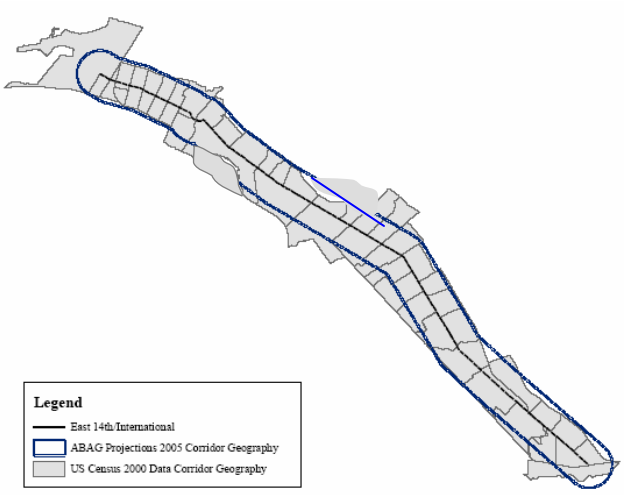
Methodology for *Projections* Based Station Area Households and Dwelling Units

Year 2000 estimates of households and dwelling units are census data. As shown in the accompanying figures, census tracts make a rough approximation to the area of the corridor. In order to improve the analysis, some areas called census blocks are used to estimate the numbers for the corridor areas. Data for those blocks that fall partially within a corridor were apportioned based on the percentage of land area.

Projections forecasts are estimated down to the census tract levels. 2000 block group information is used to identify the percentage of each tract that is initially in a corridor.



Station Areas



Corridor-Wide Area

Projections 2005 assumes that over time an increasingly higher percentage of new development in the region will take place near transit and closer to transportation corridors. Accordingly, in developing most corridor estimates a factor was used to apportion a higher number of projected new housing units to the station areas relative to the projected growth in the overall census tracts.

For 2005, 15% of the projected growth between 2000 and 2005 in applicable census tracts was shifted from the area outside of the ½-mile radius to within the station area. The 2030 figures similarly assume that in each subsequent 5-year period, an additional 15% of projected growth in the census tracts will occur within rather than outside of the station areas. This methodology is used to recognize that over time, more of the projected growth in a census tract is likely to occur within the ½-mile radius of each station.

Existing Planned Land Use Development Potential ("Build-Out") Methodology

The analysis of corridor areas rests primarily on the comparison of two sets of numbers: dwelling units as estimated from households in *Projections* 2005 and the maximum net number of dwelling units allowed under General Plan designations. In order to compare "apples to apples," the households in *Projections* 2005 were adjusted upwards by 2.5% to determine *Projections*-equivalent Dwelling Units. This adjustment is intended to take vacancy rates into account, assuming a continuing low vacancy rate through the *Projections* period. As described in further detail below, General Plan consistent units suggest how many units the General Plan can accommodate with reasonable limitations on development potential, given development constraints such as lot requirements and residential development of mixed use projects.

For most transit corridors, a buffer comprising a half-mile radius around a set of individual stations was chosen because professional standards hypothesize that a half-mile radius around a transit station represents the majority of the walkable catchment of stations (ped-shed). Consequently, a half-mile buffer was projected, for most stations, and an intersect operation in ArcGIS identified the underlying General Plan layers and calculated the acreages for each designation contained within the transit buffer. In some cases, such as within San Pablo, El Camino Real, and East 14th major corridors and with light rail operators, such as MUNI and VTA, station areas were combined to form individual corridors. This method makes sense for light rail, because station area spacings are generally very short, while for most heavy rail stations, station area spacings average three to four miles apart and therefore constitute distinct sub-areas.

Since the area of a circle with a half-mile radius is approximately 500 acres, most stations average about 500 acres of General Plan designations. Some station areas have more acres because they enclose a space containing ped-sheds of two or more nearby and overlapping station areas, some have less than 500 acres because those areas are grouped with other stations that were assigned larger areas in a union operation in ArcGIS, or they face waterfronts. BART's Embarcadero station, for example, has only 250 acres. In a few other cases, technical reasons relating to how General Plan designations fit together in the GIS, or whether or not right-of-way is accounted for in the Plan layer may determine the calculated acreage of a station area.

Since General Plan designations convey highly generalized information about development criteria, using General Plans imposes a methodological consistency across jurisdictions while reflecting the overall development intention of each jurisdiction. Because San Francisco's General Plan designations describe the development context but provide little guidance about residential densities, an additional analysis using zoning data was used to provide additional empirical support for stations falling within San Francisco's jurisdiction. When possible, information from Specific Plans and floating zones were also used in the analysis.

Using General Plan designations as identified in ABAG's regional plan database, staff calculated an initial gross number of allowed dwelling units by multiplying the number of residentially designated acres in each General Plan district by the minimum and maximum allowed numbers of dwelling units per acre. This calculation yields an initial lower and upper

bound estimate of the number of units that can be accommodated within each General Plan district, accounting for both existing units and future units.

Using Specific Plans

Specific Plans are plans that are "in essence, a special set of development standards that apply to a particular geographical area, [giving] cities and developers the flexibility to create zoning standards appropriate to the site and the project in question" (Fulton, 212). Fulton goes on explain that while state laws governing General Plans are quite specific, law pertaining to Specific Plans are quite general (213).

Specific Plans may incorporate existing General Plan designations into a detailed narrative about what should happen in a particular area, or they may fulfill the role of a master plan or Planned Urban Development in creating "custom-built" regulations governing the allowed uses, design criteria and, rarely in the Bay Area, specified "build out" numbers of dwelling units. While legally, Specific Plans are more like zoning ordinances in that they execute the intentions of the General Plan in a systematic way, their actual implementation across California jurisdictions varies in terms of content and context to a degree that makes their use in the Monitoring program difficult.

Because Specific Plans are implemented in subtly different ways across jurisdictions and sometimes even within jurisdictions, it was necessary to examine individual plans. For most part, this textual analysis simply provided narrative support for the intentions of the General Plan. In a very few number of cases, Specific Plans provided build out data but given the much larger area of transit corridors, their individual parameters usually did not make a significant impact on the calculations of the planned potential number of dwelling units.

Calculating net numbers of dwelling units

Determining net numbers of dwelling units from gross densities varies by land use category. For single-use districts, such as residential districts, allowed density can be calculated in terms of "horizontal density." Calculating horizontal density means that the acreage of the site multiplied by the allowed density will yield a gross number of units. This calculation works well with both single-family districts and multi-family districts.

With mixed-use districts, a purely horizontal approach would be inadequate, and could greatly over-estimate the number of allowed residential units because non-residential uses are allowed and comprise some exclusive portion of the district. Some cities provide detailed information in their zoning ordinances that take into account the footprint of structures built on a parcel and stipulate vertical densities. For example, San Francisco's Planning Code stipulates that some in some districts, there can be one residential unit for every 800 square feet, and others assume even greater densities, such as one unit for every 200 square feet of property. Obviously, building vertically is the only way to take advantage of these densities. In San Francisco's regulatory environment, ground floor commercial and retail uses with residential uses on top could invert the "build out" multiplier, with residential uses accounting for most of the square footage in a mixed-use district.

Using a 0.1 to 0.3 multiplier to represent the percentage of residential uses (10 percent to 30 percent, respectively) of all mixed-use square footage within a district allowing mixed uses, we can estimate the number of units that can be built in a district. This multiplier can be thought of in terms of floor to area ratio (FAR). In a district comprising 100,000 square feet of mixed use, a 0.3 multiplier would mean that 30,000 square feet of the area may be developed with residential uses at the allowed density. The FAR perspective is relevant because the footprint of the residential area need not be 30,000 feet, the residential area could comprise three floors of residential uses occupying a 10,000 square foot footprint. From this perspective, a 0.3 multiplier deployed in a mixed use district, by 2030, is not unreasonable given redevelopment activity. It may even be a conservative assumption.

Unless there was a published policy indicating otherwise, such as San Francisco's efforts to hold on to existing light industrial uses, or that there were areas that were substantially underdeveloped, staff made an effort to ensure that no assumption would completely undermine the existing character of a neighborhood near a station area. For example, Oakland's general plan may allow 300 units per acre in the downtown area, yielding a gross "build out" of over 500,000 units. Building that many units, however, would require that the built character of the downtown area, namely its office uses and jobs, would have to be fundamentally changed.

Because most General Plan designations are administered under the assumption that the actual net number of built dwelling units on any given site will be determined through the site planning process, these allowed units per acre assumptions do not account for the actual buildable potential of the site.

The difference between gross units per acre and net units per acre can be explained by planning approval process that developers go through, where gross acreage does not include ancillary uses or conditions such as roads, right-of-way or setbacks, and consequently represents an unrealistically high estimate of the total number of units that can be accommodated within a General Plan district under existing policies. Further analysis was required to generate net numbers based on a probable building envelope.

Simple rules-of-thumb were applied to each district where a multiplier of 0.7 was applied at to the gross number of allowed units per acre to determine the net number of allowed units. Based on counts of units in an acre of land in individual Bay Area cities, such as San Jose and Fremont, and a review of practices in other US cities, these rules of thumb are useful in framing the general levels of net units that are actually built under regulations allowing for higher densities.

For General Plan designations with higher multi-family density ranges, a multiplier of 0.8 was used to calculate net numbers of units. A higher range was used for higher density districts because multi-family developments tend to make the most efficient use of land. Similarly, a lower multiplier, such as 0.4 or less was applied to very low residential density plan areas. In San Francisco a generally higher multiplier was applied to residential districts because Right-of-Way, a major component of the loss of gross acreage, was separately accounted for in the General Plan layer and hence most land can be considered "net" for calculation purposes.

Because there are many different non-residential uses that are allowed and will continue to exist in any mixed-use district, staff assumed that only a small fraction of each mixed-use district would be developed with housing. Based on existing conditions and planned developments, staff estimated a 'build-out' multiplier ranging from 0.1 to 0.3, depending upon a general understanding of what existing uses were in each mixed use district in a corridor, and what could be feasibly developed without changing the fundamental character of the area.

These assumptions are relatively conservative, given other examples used in the United States. For example, the state of Washington's department of Community, Trade and Economic development (CTED) estimates even higher 'build-out' assumptions, thereby yielding higher numbers of net units (2004).

An Example of Calculating Net Numbers of Units

Planning potential and the planned maximum residential density were calculated using General and Specific Plan land use information from each of the cities and counties in the corridors.

For each type of corridor, state highway and station areas, the ABAG General Plan GIS layer was separated into the appropriate geography. For the state highway, VTA and MUNI analyses, the geography is the entire area within a half-mile of the corridor. For the station areas, the geography is generally a circle with a radius of one-half mile from the center. For each of the geographies, the land use acreages were calculated for each General Plan land use designation (Column A for the land use designation and Column B for the acreages in the demonstration table).

For each of the General Plan land use designations, a maximum residential density was obtained from the General Plan for the cities in the geography (Column C in the demonstration table). Where maximum densities were not available, they were estimated based upon available land use information for that area. Certain cities had specific plan areas that only identified probable projects, and these build out densities were used.

Once a maximum General Plan designation density was obtained, the gross maximum number of units (planning potential as represented in Column D in the demonstration table, and labeled "GrossBuild" in subsequent tables) was calculated by multiplying the density by the number of acres for that designation. This number reflects the maximum number of units if every residentially designated acre of each General Plan land use designation were developed according to the maximum residential density designated in the General Plan.

In order to more accurately reflect the maximum planning potential for each area, the gross planning potential was converted to net planning potential (Column F in demonstration table, and labeled "NetBuild" in subsequent tables) by a multiplier (Column E in demonstration table). The multiplier was created to determine the actual number of dwelling units, considering issues such as setbacks, roads, and, in mixed-use districts, how much area would contain residential versus other uses. The multiplier was generally higher in high-density residential districts and in mixed-use districts that had a residential focus. The multiplier was lower in low-density residential districts (which generally have higher setback or other building envelope requirements) and mixed-use districts that were focused on commercial or industrial uses.

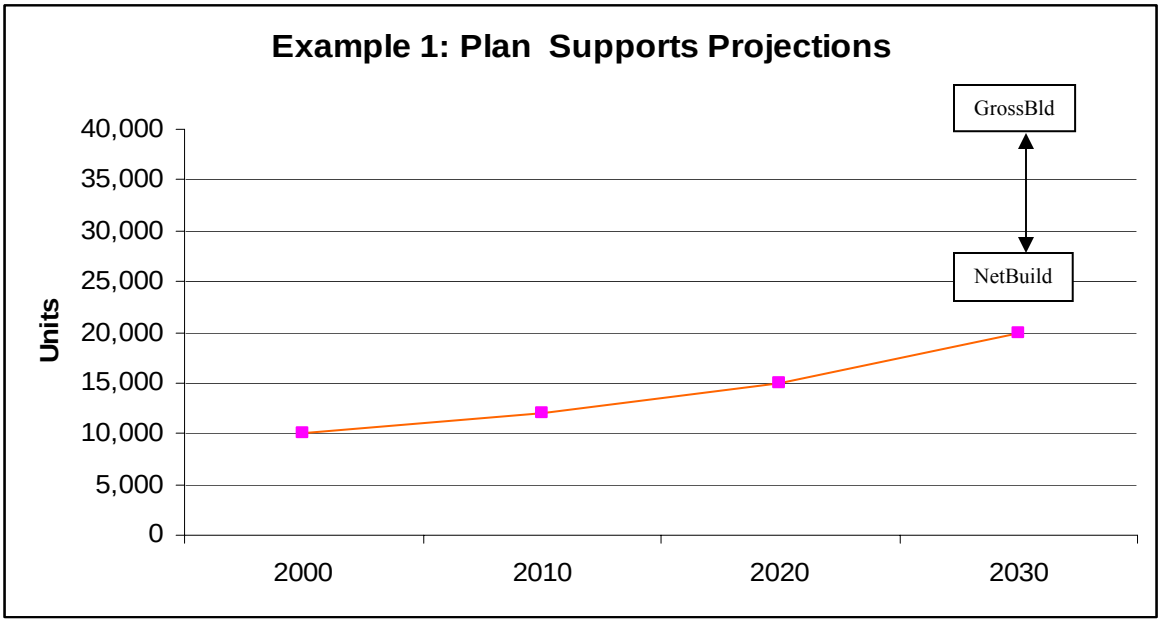
Finally, the maximum planned residential density (Column H in demonstration table) for each case study area was calculated by dividing the net planning potential by the total residential acreage (Column G in demonstration table) in the corridor.

Table 1: Column A	Column B	Column C	Column D	Column E	Column F
General Plan Land Use Designation	Total Gross Residential Acres within Land Use Designation	Maximum Allowable Residential Density for Designation	Gross Maximum Number of Units "GrossBuild"	Net Multiplier	Net Maximum Number of Units "NetBuild"
Business Mix	7.23	0	0	0.0	0
Central Business District	427.04	300	128,111	0.1	12,811
Community Commercial	3.61	125	451	0.4	180
Light Industrial	0.70	30	21	0.1	2
Off Price Retail	11.58	30	347	0.1	35
Retail Dining and Entertainment	15.03	0	0	0.0	0
Produce Market	2.68	30	81	0.2	16
Waterfront Warehouse	10.32	100	1,032	0.6	619
Mixed Use District	9.66	125	1,208	0.4	483
Institutional	0.43	0	0	0.0	0
Mixed Housing Type	1.12	30	34	0.5	17
Urban Open Space	9.01	0	0	0.0	0
Urban Residential	4.60	125	575	0.8	460
Total	**503.02**		**131,860**		**14,624**

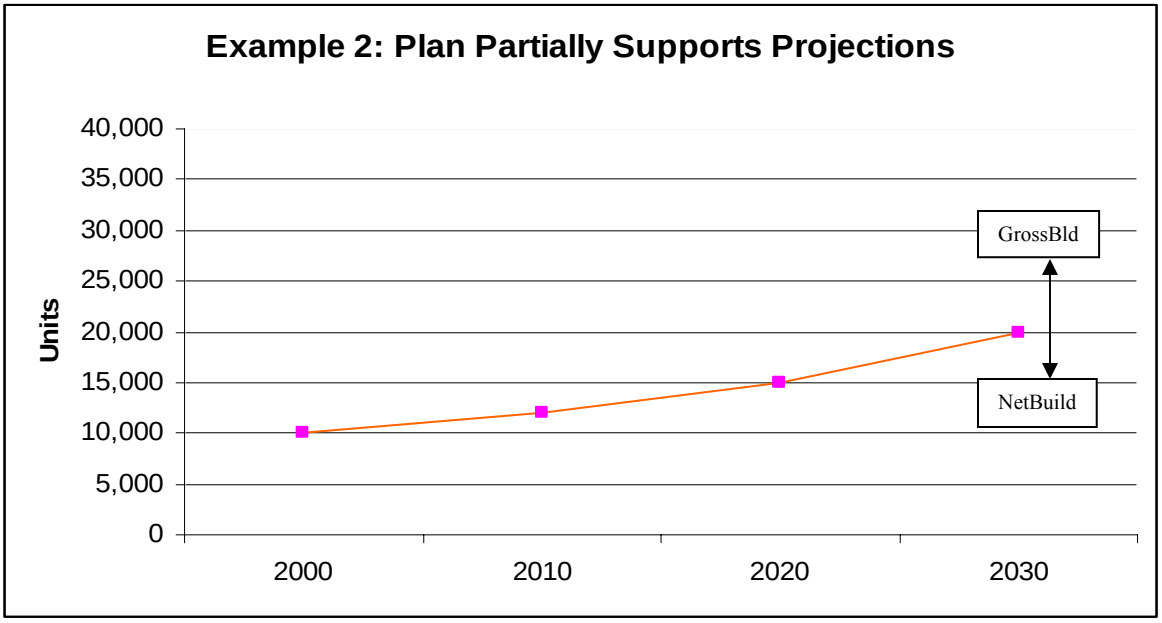
Regional Corridors Analysis

For every corridor and for each decade in *Projections* 2005, an estimated number of dwelling units, based on the number of households forecasted to reside within each station area and then adjusted upwards by 2.5 percent to account for vacant units, is provided in a table. To the right of the decennial estimates, are two further estimates, "GrossBuild," and "NetBuild."

The unit difference between these two represents an interval quantifying the difference between how many residential units would be allowed under unconstrained circumstances and how many residential units might reasonably be developed given every normal site development constraints. A very large interval generally suggests the potential of mixed-use districts to support housing without taking into consideration the square footage that would actually be mixed with commercial uses.



Example 1 above depicts a case where a General Plan provides ample planned land use support for *Projections*. In Example 2 below, the units forecasted by *Projections* intercepts the interval at a point above the NetBuild level but below the GrossBuild level, suggesting that *Projections* may still be on target, if the area in question is substantially redeveloped.



While single-use districts account for some of this unused potential, there may be very little flexibility in terms of developing to the GrossBuild point because of normal site planning considerations and political conditions at the local level. Instead, assumptions had to made concerning the ongoing or future character of each area with mixed use development.

Under each decennial dwelling unit forecast, there is a corresponding residential density for comparison purposes. This density includes dwelling units per acre for all residential uses, mixed use districts or other districts allowing residential uses accessory to some other use.

Given state requirements for local governments to update their housing elements pursuant to the fourth round of regional housing needs determination, local jurisdictions will be required to show how they will meet their housing needs in very specific terms. Support for *Projections* will be driven in part by the need to update housing elements. Through this update process, local jurisdictions may need to increase allowed residential densities to accommodate the demand for housing anticipated under the needs allocation.

Chapter 2: Analysis of Corridors

The San Francisco Bay Area's population is expected to grow to nine million residents by 2030. While an analysis of existing General Plans from the region indicates that the region can absorb this additional growth, it is important to consider how the major assumptions behind the distribution of *Projections* among cities and corridors compares to existing General Plan and Specific Plan policies.

Overall, local plans will allow, in the aggregate, more than half a million dwelling units over demand as forecasted in *Projections* 2005 by 2015, and that surplus will over 600,000 by 2030. In a few station areas within corridors, *Projections* makes assumptions about unit absorption through the forecast that is not always supported by existing General Plan policy. So even though almost every corridor easily exceeds 2030 dwelling unit numbers, there are intra-corridor imbalances in the distribution of capacity.

The following analysis considers three core corridors defined by half-mile buffers around three state highway alignments and thirteen rail station-area buffered corridors:

State highway alignments:

- San Pablo
- El Camino
- East 14th Street

Station Area Corridors:

- ACE Rail
- BART
- eBART
- tBART
- BART to San Jose
- Caltrain
- Caltrain Extension
- Capitol
- Dumbarton Proposed Rail
- Ferry Terminals
- MUNI Light Rail
- SMART Proposed Rail
- VTA Light Rail

The three state highway corridors are treated separately from the other thirteen corridors because they were subjects of an extended Caltrans funded case study analysis and because they were primarily organized around a buffer of state highway centerlines and are therefore automobile and bus oriented. The thirteen other corridors are all based on rail station areas,

such as light, heavy and commuter rail, and ferry stations, and are summarized on a regional basis against which the individual corridors are compared. The summary regional analysis is a representation of station area development patterns across the nine counties.

San Pablo, El Camino, and East 14th Street Corridors

East 14th/International Boulevard, El Camino Real, and San Pablo Avenue overlap other transit corridors which are defined by their respective operating authorities rather than a contiguous geography, as these three corridors are. Each of these corridors has high population, jobs and housing concentrations. They also have region serving transportation infrastructure, including bus, and heavy and light rail. These three corridors also represent the Bay Area's diverse communities; they each contain and connect suburban and urban places. Two of the corridors, San Pablo Avenue and East 14th, meet in one of the region's major cities, the City of Oakland.

East 14th Street/International Boulevard Corridor

Table 2:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	17,536	21,164	30,374	38,341	168,833	154,991
Residential Density (per acre)	2.9	3.5	4.9	6.3	27.7	25.5

Total Acres	Residential Acres
10,939	6,082

East 14th Street/International Boulevard has long been one of the main transportation routes in the East Bay. It passes through several neighborhoods as it makes its way through Oakland, San Leandro, and portions of unincorporated Alameda County. Each has its own mix of ethnic groups, distinct physical characteristics, and unique cultural amenities.

Table 3: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Oakland (solo)	1998	2015	*5,471*	*115,610*
Oakland (shared with SPA)			*134,358*	*18,218*
Oakland Total			139,829	133,827
San Leandro	2002	2015	11,690	11,690
Alameda County			17,314	9,474
Total			168,833	154,991

This corridor area extends for 14 miles from Wood Street in West Oakland through the downtowns of Oakland and San Leandro until East 14th Street intersects with Interstate 238 in Alameda County. As such, the corridor includes a portion of California State Highway 185, which extends from High Street in Oakland south to downtown Hayward.

Prior to the completion of Interstates 580 and 880 in the 1950s and 1960s, East 14th/International was the primary north-south highway linking Oakland, San Leandro and

the farmlands and small communities of unincorporated Alameda County. Situated between, and running parallel to, Interstates 580 and 880, it remains an important transportation artery for the residents in the surrounding neighborhoods. In addition to providing a connection to downtown Oakland and San Leandro, East 14th/International offers access to other regional destinations, such as Lake Merritt, San Leandro Hospital and Bayfair Shopping Center.

There are a variety of land uses that exist within the half-mile area around East 14th Street/International Boulevard. In general, the street itself is an auto-oriented commercial street with small businesses, retail shops, services, apartments, and some light industrial sites. For most of its length, East 14th/International is surrounded by residential neighborhoods. These are primarily made up of single-family homes, with some duplexes and apartments mixed in. The corridor also includes the central business districts of Oakland and San Leandro, as well as Bayfair Shopping Center, which is a regional mall. In addition, there are significant amounts of industrial uses in West Oakland and portions of East Oakland.

Current land use inventories for this area indicate that the area is dominated by residential uses, which account for over 50 percent of the land along the corridor. The other major types of land uses along the corridor include commercial, public/institutional, and industrial. There is slightly more vacant land than land dedicated to parks and natural areas.

El Camino Real Corridor

Table 4:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	133,129	144,596	162,349	176,631	258,134	169,156
Residential Density (per acre)	8.9	9.7	10.9	11.9	17.3	11.3

Total Acres	Residential Acres
45,244	14,904

One of America's oldest roads, El Camino Real originated in 1769 as a walking path that extended over 600 miles from San Diego to Sonoma. As San Francisco grew into a major urban center, smaller places on the Peninsula evolved along the road, including farms that grew food for city dwellers and summer estates for San Francisco's wealthier residents. The road therefore played an integral role in the early development of the Bay Area.

Table 5: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Atherton	2002	2020	1,500	1,096
Belmont	1982	2002	4,951	3,523
Burlingame	1994	2004	10,093	8,079
Colma	1999	2005	517	277
Daly City	1987	1992	4,437	1,317
Hillsborough	2005	2025	599	359
Los Altos	2002	2020	1,212	935
Menlo Park	1994	2010	5,913	3,877
Millbrae	1998	2015	8,326	8,149
Mountain View	1998	2020	26,228	21,842
Palo Alto	1998	2010	30,453	25,695
San Mateo city	1995	2010	30,000	23,930
Santa Clara	2000	2010	48,265	19,873
South San Francisco	1999	2020	8,781	4,910
San Bruno	1984	2004	5,297	3,222
San Carlos	1991	2011	9,518	6,359
Redwood City	1990	2000	32,008	15,130
Sunnyvale	1997	2017	28,936	20,083
San Mateo county			1,100	500
Total			258,134	169,156

El Camino's importance to the region diminished with the construction of the railroad that later became Caltrain. The original Peninsula Railroad was constructed between San Francisco and San Jose in 1863, and spurred the formation of downtowns around its stations.

Housing and commercial activity radiated outwards from the train stations. Many of these new downtowns were more than a mile away from El Camino.

El Camino Real was revitalized in the early 20th century as a part of the new state highway system. The road was paved from the northern end of San Mateo County to San Jose, establishing and unifying the current corridor geography. A building boom followed, spawning many of the roadside motels, restaurants and businesses that characterize El Camino today. This development character reflects the brief time period in the 1950s when El Camino Real was the key transportation corridor--and therefore the primary engine of economic development--for the peninsula region.

In the 1960's, Highway 101 supplanted El Camino Real as the preferred roadway along the Peninsula. Again, new urban development occurred in response to this new transportation corridor, often in the form of office parks and campuses. Little housing development occurred, however, and mass commuting from other areas created highway traffic congestion.

San Pablo Corridor

Table 6:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	67,448	73,402	83,039	93,765	305,049	98,888
Residential Density (per acre)	8.7	9.5	10.7	12.1	39.4	12.8

Total Acres	Residential Acres
10,816	7,740

San Pablo Avenue serves as a major thoroughfare in the region, running from 17th Street in downtown Oakland north to the City of Hercules, just east of Interstate 80. San Pablo Avenue traverses more than twenty miles through nine cities and two counties, encompassing a diverse set of communities, including dense urban downtowns, suburban communities and rolling hills.

Table 7: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Oakland (solo)	1998	2015	*66,815*	*39,238*
Oakland (shared with E14)			*134,358*	*18,218*
Oakland Total			201,172	57,456
Albany	1990	2010	8,421	8,421
Berkeley	2002		24,448	21,165
Emeryville	1993	2008	7,000	1,606
Hercules	1998		5,193	3,000
Pinole	1990	2010	6,531	1,407
Richmond	1990	2000	23,659	1,400
San Pablo	1996	2016	9,197	1,613
El Cerrito	1999	2019	14,383	1,413
Contra Costa County	1995	2010	5,045	1,407
Total			305,049	98,888

From south to north, San Pablo Avenue passes through the cities of Oakland, Emeryville, Berkeley, Albany, El Cerrito, Richmond, San Pablo, Pinole, and Hercules and the counties of Alameda and Contra Costa. During much of this length, it is designated as California State Route 123. In Hercules, San Pablo Avenue terminates at California State Route 4.

San Pablo Avenue is an auto-oriented suburban boulevard, consisting of a variety of low-scale commercial malls, surface parking lots, and older one-and two story commercial and residential buildings. Residential uses make up more than half of all the uses in that half mile buffer, followed by private commercial uses. About eight percent of the land within a half of a mile from San Pablo Avenue is vacant. This does not include surface parking lots and other underutilized parcels, which are prevalent along San Pablo Avenue. Parks and natural areas also make up eight percent of that area. The majority of the park lands are clustered in the northern section of the corridor, along the shoreline and in the Richmond Hills. Local city

parks, small pocket parks and public spaces are sparsely dispersed throughout the corridor, and virtually no parks or natural areas front San Pablo Avenue. A small percentage of the land is developed as mixed use, residential and commercial or retail.

Low-density land uses, abundant vacant and surface lots, and lack of public spaces all contribute to the poor utilization of land and existing infrastructure. Most buildings along San Pablo Avenue are one or two stories, except in Downtown Oakland where heights and densities are significantly greater. Approximately one-third of the residential neighborhoods are very low density (between three and eight units an acre). As an example, the average residential density around the El Cerrito Del Norte BART station is only 12 units per acre, well below the 35 units an acre that is considered supportive of fixed rail transit infrastructure.

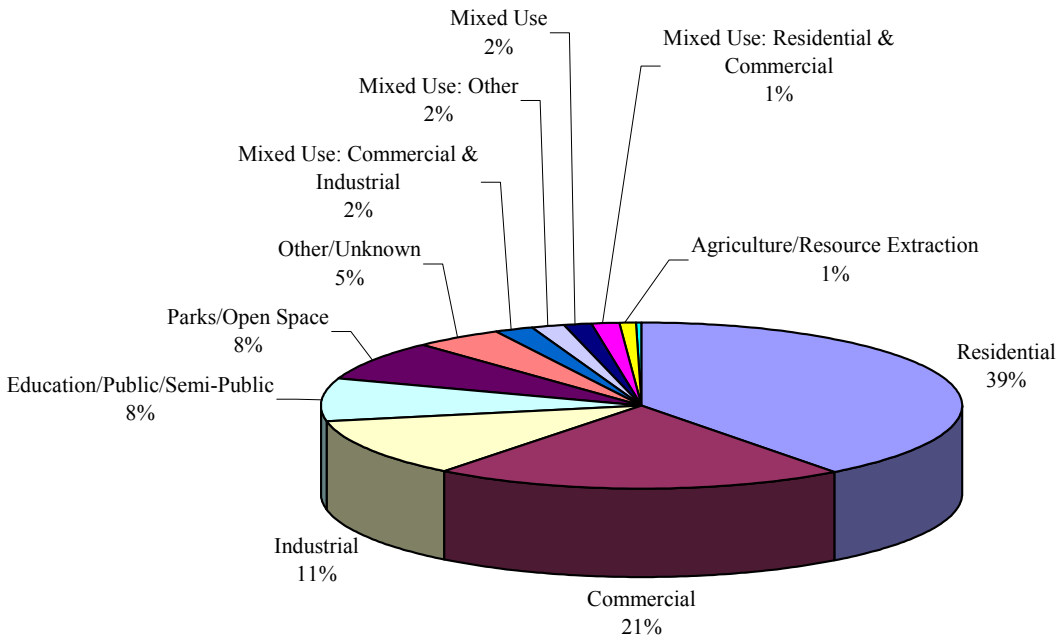
Regional Analysis (all rail corridors and ferry terminals)

Table 8:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	456,272	1,016,121	643,028	765,188	2,465,433	1,373,126
Residential Density (per acre)	7.2	15.9	10.1	12.0	38.7	21.5

Total Acres	Residential Acres
116,684	63,765

With a planned capacity for over 1.3 million units, Bay Area transit corridors have the potential to treble the number of existing dwelling units. While this potential is contingent upon aggressive planning for higher density at the local level, Bay Area corridors can absorb much of the anticipated region-wide growth in population over the *Projections* forecast period as called for in the forecast assumptions.

Regional Corridor Land Use (% of all land within half-mile buffer)

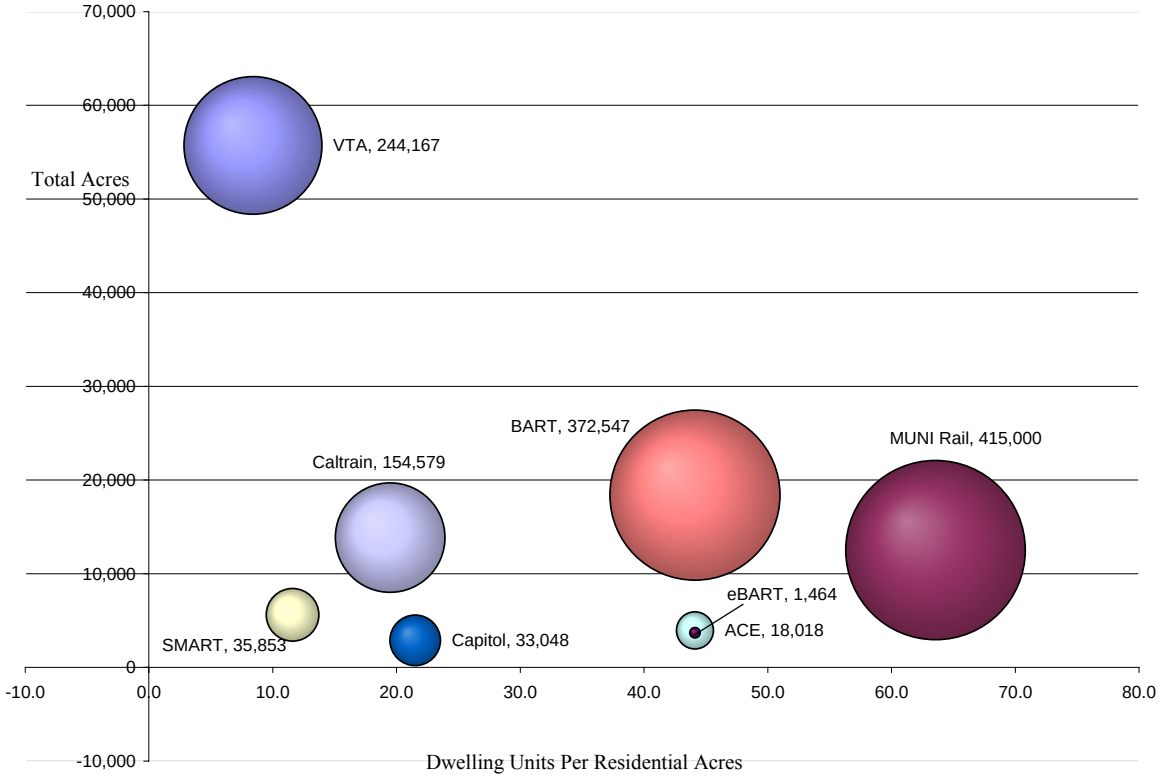


On a region-wide basis, corridor and station area land uses are dominated by residential districts, with about a quarter of other land uses split evenly between industrial and commercial districts. Open space and parks are as common as education and public land uses, with about eight percent of land use. Overall, there is very little mixed use currently designated as such in the corridor areas.

In some cases, however, the potential for mixed use development is underestimated. For example, in San Francisco, land designated for commercial uses may still support residential development. During the data collection process for the Regional Plan Database, it was not always possible to distinguish between districts whose primary intended pattern is for commercial uses but which allow residential uses conditionally or as an accessory use and mixed use districts, which may be more common in urban core cities interested in redevelopment of corridor areas in a "packaged" format where residential and commercial uses are co-developed as part of individual projects.

Comparing Corridors

There is a detailed analysis of each corridor in the following pages. Prior to a discussion of individual corridors it is worthwhile to frame each corridor in its regional context. Because there is overlap between corridors, depicting a pie-chart of the relative share of the regional dwelling unit total would have been misleading. Instead, this contextual graphic depicts how each rail corridor compares to the others in terms of density and acreage.



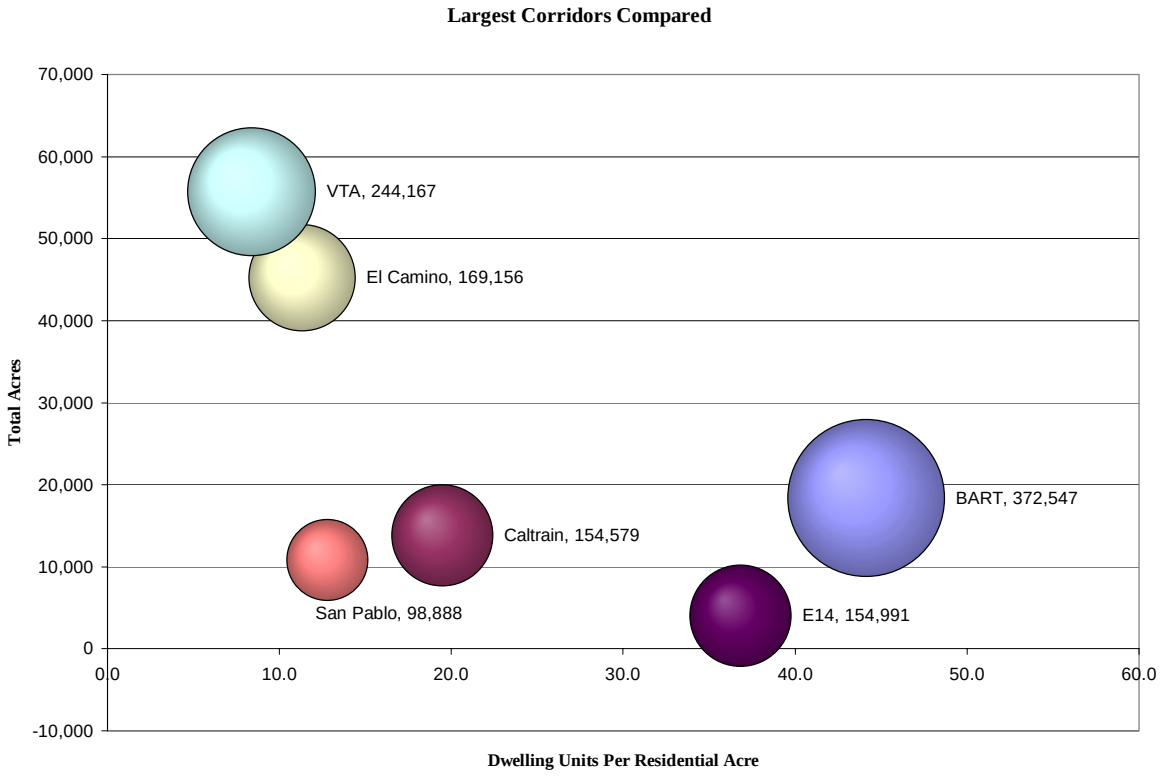
The bubble-graph also labels each bubble with the net number of allowed units under General Plans for each station area corridor. The total number of acres for the each corridor is given on the Y-axis, and the density per residential acre is given on the X-axis.

Two corridors have very high total acreage and highest allowed densities. As discussed in greater detail in the following analysis, VTA encompasses the largest area but because

allowed densities are among the lowest in the region, VTA's total allowed units is much smaller than the next largest corridor, BART.

The most dense corridor is the MUNI light rail alignment. Even though the total acreage of the MUNI light rail corridors is relatively low, MUNI has the third largest potential for housing development. Falling in between the extremes of VTA and MUNI**,** most transit corridors have relatively low residential densities.

Next to MUNI, the largest rail corridors, VTA, BART and Caltrain, are compared to the state highway corridors to complete the regional overview. Not surprisingly, East 14th/International and El Camino Real closely shadow the nearest rail transit system's allowed residential densities, reflecting common land use norms and regulations. Only VTA actually has less overall residential density than El Camino Real.



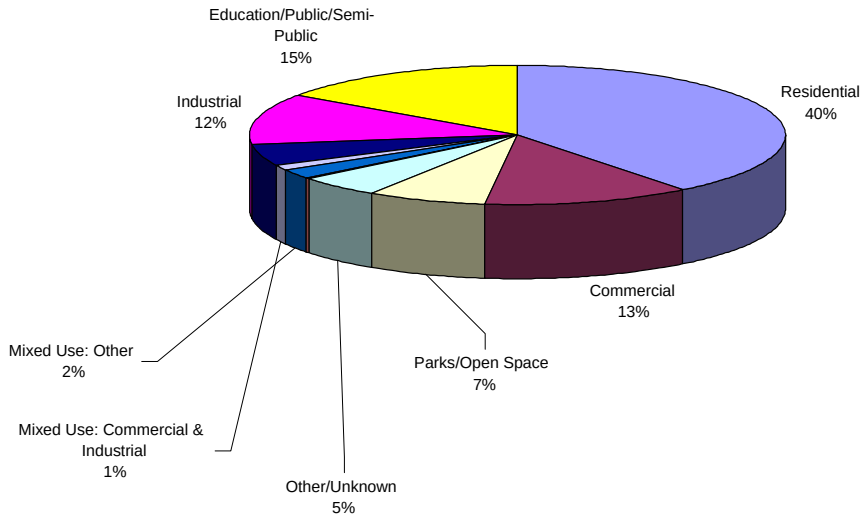
ACE Rail

Table 9:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	7,831	10,942	13,678	17,738	27,251	21,719
Residential Density (per acre)	8.0	11.2	13.9	18.1	27.8	22.1

Total Acres	Residential Acres
2,472	981

The Altamont Commuter Express runs four trains daily between Stockton to San Jose with Bay Area stops in Livermore, Pleasanton, Fremont, Santa Clara and terminating at Diridon station in San Jose. As the table indicates, there is an ample supply of planned residential land that can accommodate *Projections* housing numbers, even though residential densities are rather low.

ACE Corridor Land Uses (% of all land within half-mile buffer)



As the pie chart above shows, forty percent of the land within the ACE corridor is residential, with equal but smaller shares of commercial and industrial land supporting employment within the corridor. Compared to the region as a whole, ACE corridor densities are higher than the regional average across the *Projections* horizon.

Table 10: Corridor Estimates by Jurisdiction	General Plan Start	End	Corridor GrossBuild	Corridor NetBuild
Alameda County			2,043	1,635
Fremont	1991	2010	16,005	12,328
Livermore	2003	2025	245	73
Pleasanton	1995	2005	1,456	1,138
San Jose	1992	2020	4,894	4,178
Santa Clara	2000	2010	2,608	2,367
Total			27,251	21,719

Corridor Specific Plans

Table 11: Jurisdiction	**Specific Plan**	**Adopted**
Fremont	Centerville Specific Plan	1993/2006
Livermore	Livermore Downtown Specific Plan	2004 (End 2013)
Pleasanton	Bernal Property Specific Plan	2000/2006
Pleasanton	Pleasanton Downtown Specific Plan	2002 (End 2010)
San Jose	Midtown Planned Community	1992 (2012)
Santa Clara	Rivermark Master Community Plan	2003

Existing BART system

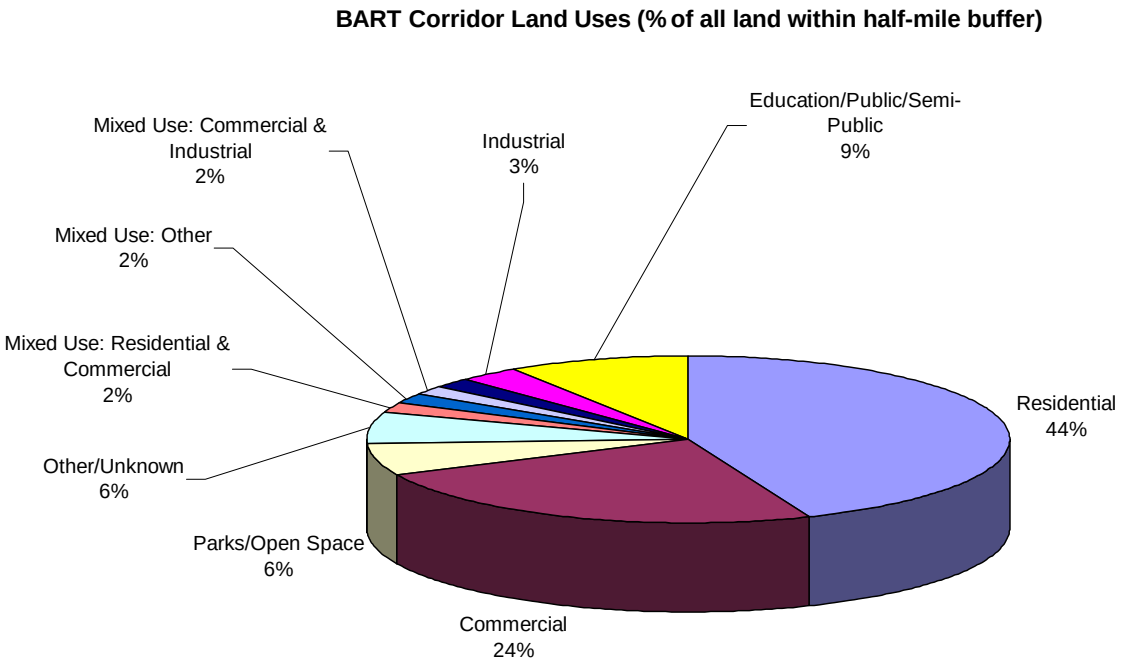
Table 12:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	175,093	196,143	238,366	277,262	845,259	372,086
Residential Density (per acre)	20.7	23.2	28.2	32.8	100.0	44.0

Total Acres	Residential Acres
18,387	8,451

As the dominant rapid rail operator in the Bay Area, land use decisions affecting property along the BART alignment and its station areas in particular have the potential to most directly impact the potential housing and jobs to be located near transit.

Table 13: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Alameda County			7414	5318
Albany	1990	2010	2022	1734
Berkeley	2002	Unknown	33956	28384
Burlingame	1994	2004	445	401
Colma	1999	2005	502	402
Concord	1994	Unknown	8735	6908
Contra Costa County	2005	2020	9394	6314
Daly City	1987	1992	5719	4347
Dublin	2005	2025	557	446
El Cerrito	1999	2019	12879	9582
Fremont	1991	2010	9391	7955
Hayward	2002	2025	6494	4882
Lafayette	2002	2017	6844	4963
Millbrae	1998	2015	4451	3352
Livermore			1,650	1,010
Oakland	1998	2015	457,691	151,201
Orinda	1987	2007	610	212
Pittsburg	2004	2020	2936	1916
Pleasant Hill	2002	2022	225	178
Richmond	1990	2000	6,457	5,049
San Francisco	1992	Unknown	249,068	112,634
San Leandro	2002	2015	5,749	4,022
South San Francisco	1999	2020	662	530
Union City	2002	2020	7929	6674
Walnut Creek	2005	2025	5,554	4,134
Total			845,259	372,086

For this reason, the fact that the net development potential of this "corridor" exceeds anticipated growth through 2030 by nearly 63,000 units is encouraging.



This surplus capacity, however, is not uniformly distributed. In some cases, the station area methodology may estimate the number of potential units in a manner that includes surrounding census tracts that are not reflected in the immediate station vicinity. For example, the *Projections* methodology estimates 2,900 units around Embarcadero today and about 9,000 units in 2030. The analysis of the General Plan designation for the area, however, does not support this conclusion because 210 of the 250 acres are set aside for commercial and office uses. As noted in the Methodology section, Embarcadero contains half of the acreage normally associated with a half-mile buffer because half of that area is in San Francisco bay.

Other stations appear to have the potential capacity to almost perfectly match the 2030 *Projections* (e.g., Montgomery with 14,000 General Plan consistent units and about 14,000 *Projections*-equivalent dwelling units). The majority of stations have greater potential than *Projections* assumes, with particular standouts including MacArthur, Coliseum, and Fremont.

In the short run, San Francisco's station areas present the biggest obstacles to *Projections* for station areas. Most of the land use around those station areas are high in employment density, while relatively little land is dedicated exclusively to residential uses. While these results are not surprising, given the downtown area's role as a major regional employment center, the data do suggest that with most development potential in Oakland and in nearby suburbs, that residential growth, all other things being equal, will tend to gravitate toward those areas. On the other hand, residential development in the nearby Transbay Terminal area, among other projects, and the lack of a ceiling density in San Francisco's downtown area, may mean that in the future that residential development

may occur in towers, occupying a relatively small footprint, but with enough floors to accommodate more dwelling units than the Methodology seems to support.

In recent years, many cities have adopted infill strategies. While Oakland's plans are the most ambitious, with nearly 10,000 new residents in the downtown area, infill strategic planning is moving forward in many parts of the East Bay. In 2000, San Leandro adopted a Central San Leandro Revitalization Strategy, addressing the area several blocks west of East 14th Street. The strategy focused on promoting higher density infill to take advantage of proximity to Downtown and BART. In 1998, as part of a citywide General Plan update, Millbrae adopted the Millbrae Station Area Specific Plan (MSASP) to set a vision for redevelopment of the 116 acres around the BART/Caltrain Station. The MSASP plans for higher density housing, retail, restaurant, office, hotel, and entertainment in a mixed-use setting, even though most land consists of commercial, light industrial and open space.

Not surprisingly, given BART's core transit role, residential densities around BART stations are generally higher than the regional average. Consistent with its historical role as a conduit for workers traveling to office jobs in downtown San Francisco, the share of industrial uses is considerably lower along BART (3%) than the regional average (11%).

Table 14: Jurisdiction	Specific Plan	Adopted
Berkeley	Berkeley Downtown SP	1990
Burlingame	Bayfront Specific Plan	2004
Burlingame	Rollins Road Specific Plan	2004
Contra Costa County	Pittsburg-Bay Point BART Station Area Specific Pla	2001
Contra Costa County	Pleasant Hill BART Specific Plan	1998
Daly City	Daly City BART Station Area Specific Plan	1993
Daly City	Sullivan Corridor Specific Plan	1998
Dublin	Eastern Dublin Specific Plan	2002
Hayward	Mission Garin Annexation Program	1997
Millbrae	Millbrae Station Area Specific Plan	1998
Oakland	Central City East Redevelopment Plan	2002 (2033)
Oakland	Coliseum Redevelopment Plan	
Pittsburg	Pittsburg-Bay Point BART Station Area Specific Pla	2001
Pleasant Hill	Pleasant Hill BART Specific Plan	1998
Richmond	Knox Cutting Specific Plan	1990 (2005)
Richmond	Richmond City Center Specific Plan	2001
San Francisco	Chinatown Area Plan	1995
San Francisco	Civic Center Plan	1989
San Francisco	Northeastern Waterfront Area Plan	1990 (1997)
San Francisco	Rincon Hill Area Plan	1995
San Francisco	San Francisco Downtown Area Plan	1989

eBART

Table 15:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	6,946	8,739	11,235	13,894	16,250	10,960
Residential Density (per acre)	4.0	5.1	6.5	8.1	9.4	6.4

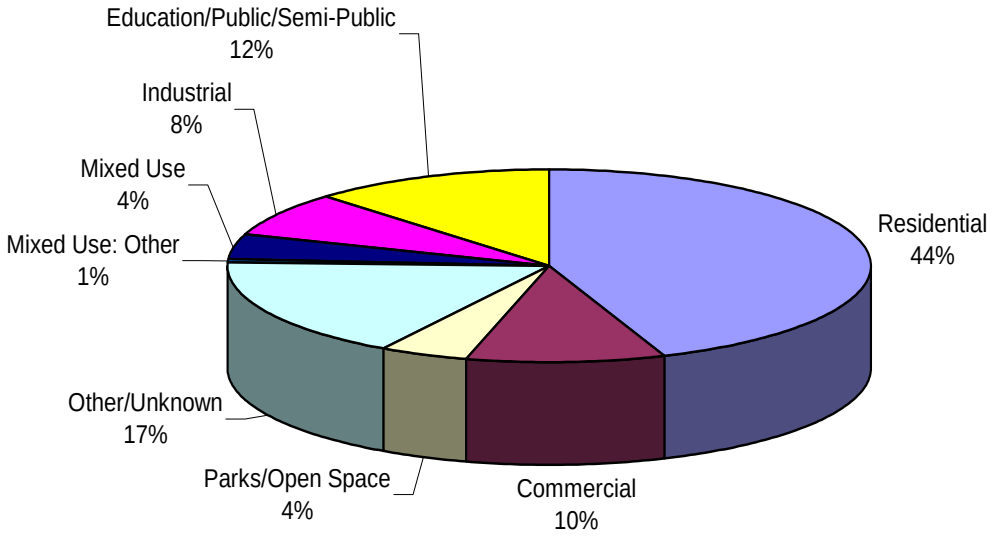
Total Acres	Residential Acres
3,491	1,721

As an MTC Resolution 3434 Corridor, eBART is a 21 mile proposed extension of BART through eastern Contra Costa county. From the existing station at Pittsburg/Bay Point, the route is proposed to extend trough Pittsburg, the Antioch Fairgrounds, Hillcrest Avenue in Antioch, Oakley, Brentwood and terminate in Byron/Discovery Bay. In December 2006, BART announced that the proposed full route will be truncated to terminate in Oakley.

For this analysis, Brentwood was left inside the Corridor. Below is a table with start and end dates for General Plans, information on Housing Element updates are in Appendix B.

Table 16: Corridor Estimates by Jurisdiction	Start	End	GrossBuild	Corridor NetBuild
Antioch	2001	2006	4,949	4388
Brentwood	2000	2021	3,090	1328
Contra Costa County	2005	2020	4,882	3,284
Oakley	2002	2020	552	236
Pittsburg	2004	2020	2,777	1,724
Total			16,250	10,960

eBART Corridor Land Uses (% of all land within half-mile buffer)



A notable characteristic of almost all of the General Plan land uses adjacent to eBART's alignment is the very low residential densities that characterize the existing communities of Brentwood, Oakley, Antioch and unincorporated Contra Costa County. While the General Plans of these areas support the *Projections* forecast until 2020, some Plans do not support *Projections* much beyond that date. Specifically, Antioch, Oakley and parts of Pittsburg stops within this corridor are not currently designated to yield the densities anticipated by *Projections*. Given that Oakley's and Pittsburg's General Plans will sunset in 2020, it is not particularly alarming that the dwelling unit estimates beyond that date seem to exceed the planned capacity.

According to Resolution 3434 criteria, the threshold housing for eBART, per station, is 2,200 units. In fact, the low average residential density of about ten to fifteen dwelling units per residential acre can support bus service but does not meet other agency recommendations, such as VTA's, for 80 units/acre to support rail transit.

With low residential densities and a land use pattern around station areas similar to the region (44% residential), limited housing is expected around these stations. General Plans and Specific Plans will need to be amended to allow and encourage higher levels of residential density.

Unlike the regional norm, only a small share (10%) of land along the eBART corridor is designated for commercial uses, compared to a more balanced 21 percent share at the regional level. This disparity generally reflects the residential trip-origin nature of

stations along this corridor. This balance of land uses is consistent with a predominantly commuter oriented land use mix.

Jurisdiction	Specific Plan	Adopted
Antioch	East Lone Tree Area Plan	1996
Antioch	Rivertown Uptown Waterfront	2003
Antioch	Somersville Road Corridor	
Antioch	State Route 4 Industrial Frontage	
Brentwood	Brentwood Downtown Specific Plan	2005
Pittsburg	Pittsburg-Bay Point BART Station Area Specific Pla	

tBART

Table 17:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	2,245	3,294	4,974	6,536	3,751	2,293
Residential Density (per acre)	13.1	19.2	28.9	38.0	21.8	13.3

Total Acres	Residential Acres
1,464	172

The proposed extension of BART from Dublin/Pleasanton to Livermore, or tBART, would connect stations in the area through a light rail network to Dublin/Pleasanton. For this analysis, the tBART corridor comprises three stations, Dublin/Pleasanton, and the Livermore Downtown and Vasco station areas.

Compared to regional norms, tBART is dominated by industrial and mixed uses (30 percent each), while the share of residential uses is significantly lower along tBART compared to the region as a whole. Residential densities are higher along tBART than the regional average, in part because the relatively high proportion of mixed use along tBART understates the real residential acreage potential. Recent development activity near the Dublin/Pleasanton station indicates even higher residential densities than those average densities in the table above, reflecting density bonuses for locating near transit.

The relative share of land that is exclusively designated as residential, fourteen percent along this corridor, is much lower than the regional average, and is by far the lowest share of that land use in the entire region.

tBART Corridor Land Uses (% of all land within half-mile buffer)

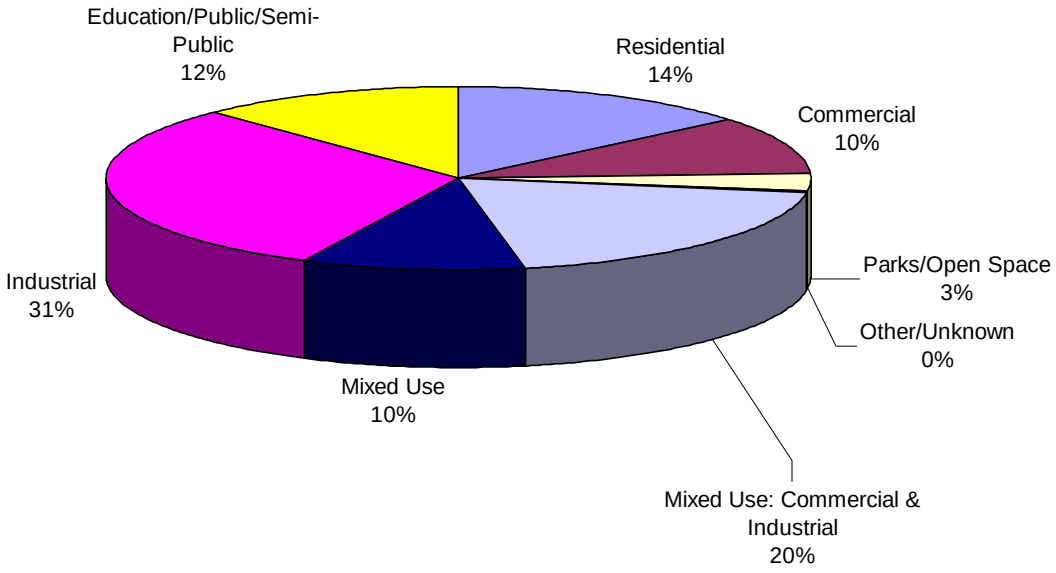


Table 18: Jurisdiction	Specific Plan	Adopted
Dublin	Eastern Dublin Specific Plan	2002
Livermore	Livermore Downtown Specific Plan	2004 (End 2013)

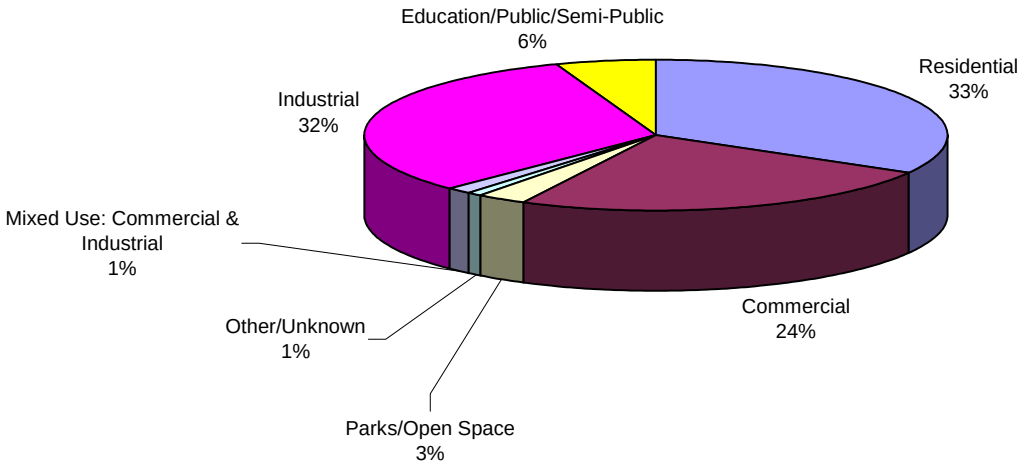
BART to San Jose

Table 19:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	11,172	13,940	23,613	39,939	54,419	46,471
Residential Density (per acre)	8.8	11.0	18.6	31.5	42.9	36.6

Total Acres	Residential Acres
13,807	7,146

The proposed BART extension to San Jose will run 16 miles from the planned Warm Springs station in Fremont, with almost five miles of underground rail through downtown San Jose. Service is planned to begin by 2016.

BART to San Jose Corridor Land Uses (% of all land within half-mile buffer)



With relatively high allowed residential densities, the General Plans for the corridor as a whole support *Projections* through the forecast period. After 2015, Alum Rock, Montague and the propose Warm Springs stations are projected to house more residents than their respective General Plans currently allow. Given tensions over possible residential development near the NUMMI plant, Warm Springs itself may not be developed with residential uses at all. There may still be residential uses within the vicinity of the BART station.

Almost equally divided between residential, commercial and industrial planned land uses, the BART to San Jose corridor is characterized by *Projections* as undergoing a steep increase in housing units and densities over time. While heightened levels of units and residential densities are supported by General Plans and Specific Plans, it is possible that some of the mix of land uses may shift or that existing commercial and especially industrial uses may intensify and make more efficient use of available land.

Table 20: Jurisdiction	Specific Plan	Adopted
Milpitas	Midtown Milpitas Specific Plan	2002
San Jose	Berryessa Planned Community	
San Jose	Midtown Planned Community	1992

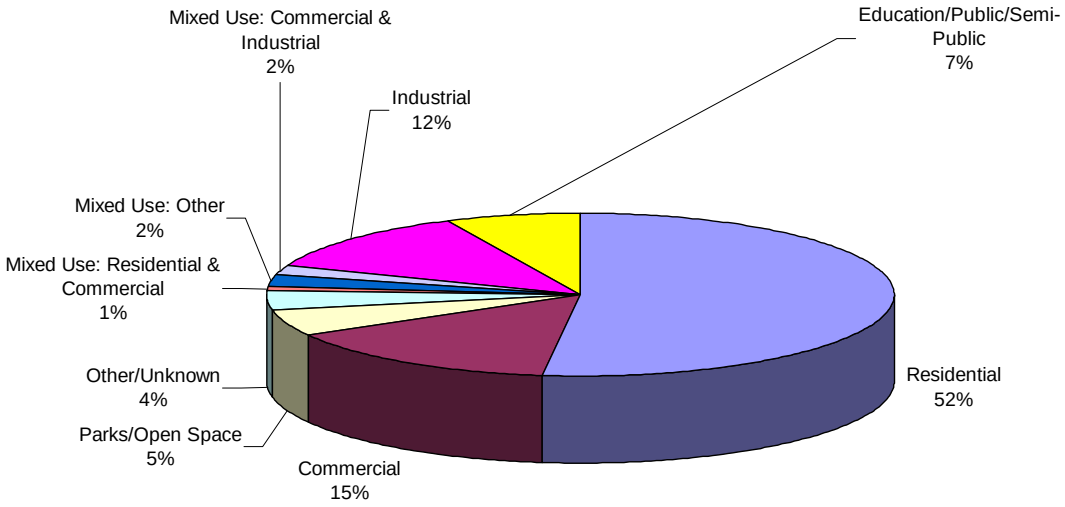
Caltrain

Table 21:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	59,879	70,380	89,805	109,558	229,056	147,786
Residential Density (per acre)	0.6	0.8	1.2	1.7	35.3	22.8

Total Acres	Residential Acres
12,704	6,494

Stretching from downtown San Francisco at 4th and King through San Mateo County to Gilroy, Caltrain connects ridership from MUNI in San Francisco to Diridon and other stops along the peninsula. With 32 daily trains, Caltrain has been increasing ridership in recent years and given increasing interest in Smart Growth policies in the peninsula, there is an opportunity to reinforce ridership on Caltrain through greater residential densities along the alignment. With residentially designated land occupying about half of the area within the Caltrain corridor, there is an opportunity to leverage that existing land use with more intense development. While those residential densities are higher than in some other corridors, the potential for housing has not been exploited.

Caltrain Corridor Land Uses (% of all land within half-mile buffer)



Land uses within Caltrain's half-mile buffer are mostly residential uses, followed by commercial uses. The share of planned residential uses is significantly higher than the regional average (39%). There is also very little mixed use (5%) within the buffer. As with other heavy rail corridors, Caltrain borders a larger percentage of industrial land than does BART, pointing to rail's historical freight movement role. Planned residential

capacity along this corridor significantly exceeds *Projections* demand for housing over the forecast period.

Table 22: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Atherton	2002	2020	0	0
Belmont	1982	2002	2,670	1,680
Brisbane	1994	2003	0	0
Burlingame	1994	2004	9,040	7,387
Daly City	1987	1992	72	51
East Palo Alto	2005	2025	84	53
Gilroy	2005	2025	2,356	1,525
Hillsborough	2002	2020	8	2
Los Altos	1994	2010	1	0
Menlo Park	1998	2015	9,671	6,436
Millbrae	2001	2030	2,232	1,677
Morgan Hill	1988	2005	2,323	1,324
Mountain View	1998	2010	18,776	15,710
Palo Alto	1999	2020	28,684	24,909
San Bruno	1984	2004	2,176	1,306
San Carlos	1991	2011	6,686	5,397
San Francisco	1992	Unknown	111,062	54,990
San Jose	1992	2020	16,503	12,453
San Mateo	1995	2010	12,496	9,684
San Mateo County	1986	2000	438	301
Santa Clara	2000	2010	1,821	1,465
Santa Clara County	1995	2010	0	0
Sunnyvale	1997	2017	1,956	1,437
Total			229,056	147,786

Table 23: Jurisdiction	Specific Plan	Adopted
Belmont	Belmont Downtown Specific Plan	1995/2005
Brisbane	Baylands Specific Plan	2006
Burlingame	Bayfront Specific Plan	2004
Burlingame	Rollins Road Specific Plan	2004
Gilroy	Gilroy Downtown Specific Plan	2005
Millbrae	Millbrae Station Area Specific Plan	1998
Mountain View	2100 California Street Precise Plan	1986
Mountain View	California Ortega Precise Plan	1987
Mountain View	San Antonio Station Precise Plan	2002
Palo Alto	South of Forest Area	2000 (2010)
Redwood City	Downtown Medical Campus Precise Plan	2003
Redwood City	Redwood City Downtown Area Plan	2001
San Carlos	East San Carlos Specific Plan	2003
San Francisco	Central Waterfront Area Plan	1998
San Francisco	Mission Bay Redevelopment Plan	1998
San Francisco	Northeastern Waterfront Area Plan	1990 (1997)
San Francisco	South Bayshore Area Plan	1995
San Jose	Midtown Planned Community	1992
San Jose	Tamien Station Area Planned Community	1995
San Mateo	Rail Corridor TOD Plan	2005

Caltrain Extension

Table 24:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	4,054	4,975	7,876	11,027	9,352	8,204
Residential Density (per acre)	28.5	35.0	55.5	77.7	65.9	57.8

Total Acres	Residential Acres
343	142

The proposed Caltrain Extension would run an underground tunnel from its present terminus in San Francisco, at 4th and King, extending the line to the new Transbay Terminal, linking the Peninsula to MUNI, BART and AC Transit. Extending further into San Francisco, adjacent residential densities are significantly higher than the remainder of the Caltrain corridor. Currently, San Francisco plans support roughly 8,200 housing units while *Projections* assumes even more intense development after 2020.

Table 25: Jurisdiction	**Specific Plan**	**Adopted**
San Francisco	Central Waterfront Area Plan	1998
San Francisco	Chinatown Area Plan	1995
San Francisco	Mission Bay Redevelopment Plan	1998
San Francisco	Northeastern Waterfront Area Plan	1990 (1997)
San Francisco	Rincon Hill Area Plan	1995
San Francisco	San Francisco Downtown Area Plan	1989

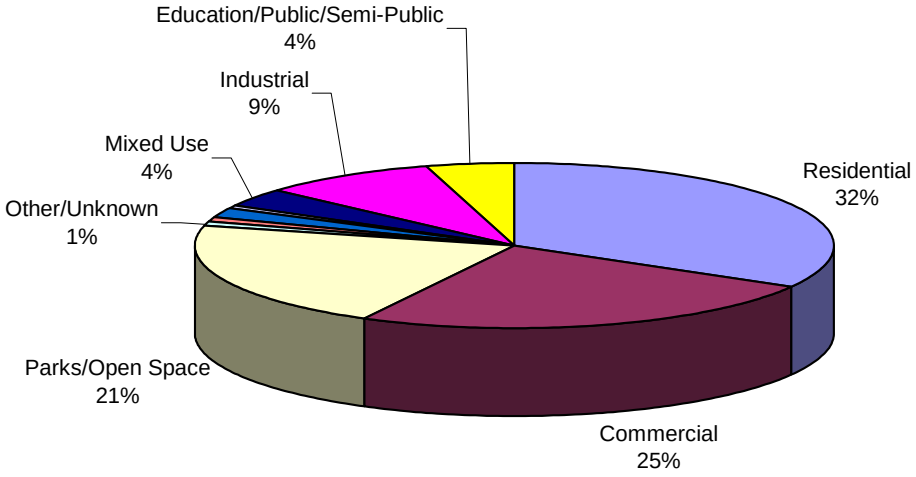
Capitol Corridor

Table 26:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	11,134	15,181	19,835	24,382	127,146	43,447
Residential Density (per acre)	9.7	13.2	17.2	21.1	110.3	22.2

Total Acres	Residential Acres
4,957	1,153

As the name Capitol Corridor suggests, this corridor supports commuter service between Sacramento and the Bay Area, roughly parallel to I-80. With Bay Area stops in Fairfield, Martinez, Richmond, Berkeley, Emeryville, Oakland, Hayward, Fremont, Santa Clara and San Jose, Capitol Corridor serves the East and South bays.

Capitol Corridor Land Uses (% of all land within half-mile buffer)



With half of the land within this corridor designated for residential uses and mixed uses allowing residential uses, there is both the required mix of land uses over all and planned capacity to absorb all forecasted residential development through 2030.

Table27: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Alameda	2002	2020	497	348
Berkeley	1982	2002	2,384	1,912
Emeryville	1987	1992	11,157	7,089
Fairfield	2005	2025	981	589
Fremont	2002	2020	8,791	6,912
Hayward	1994	2010	2,999	2,165
Martinez	1998	2015	3,259	2,548
Oakland	1998	2020	86,657	13,560
Richmond	1998	2010	3,563	2,776
San Jose	1995	2010	4,301	3,543
Santa Clara	2000	2010	2,066	1,495
Suisun City	1984	2004	762	511
Total			127,416	43,447

As with BART, the Capitol Corridor's planned capacity is uneven across jurisdictions with most capacity in the larger cities, while station areas at Hayward and at Fairfield do not seem to have planned capacity for forecasted growth after 2010. With plan horizons in 2025 and 2020, respectively, there may be an opportunity to promote Transit Oriented Development when housing elements must be revised coincident with the Regional Housing Needs Allocation process.

Overall, Capitol Corridor planned densities support *Projections* densities through the *Projections* forecast period. Capitol Corridor densities are also higher than regional norms, and the mix of land uses in the Capitol Corridor supports a higher proportion of commercial uses, similar to the proportion in the BART corridor.

Compared to regional norms, the Capitol Corridor is characterized by much more parks and open space than all other corridors except for ferry terminals, while commercial and residential shares of land are similar.

Table 28: Jurisdiction	Specific Plan	Adopted
Berkeley	West Berkeley Plan	1993
Emeryville	Park Avenue District Plan	2005
Fremont	Centerville Specific Plan	1993/2006
Oakland	Central City East Redevelopment Plan	2002 (2033)
Oakland	Coliseum Redevelopment Plan	2004
Richmond	Knox Cutting Specific Plan	1990 (2005)
Richmond	Richmond City Center Specific Plan	2001
San Jose	Alviso Planned Community	1998 (2020)
San Jose	Midtown Planned Community	1992
Suisun City	Suisun City Downtown Waterfront Plan	1999

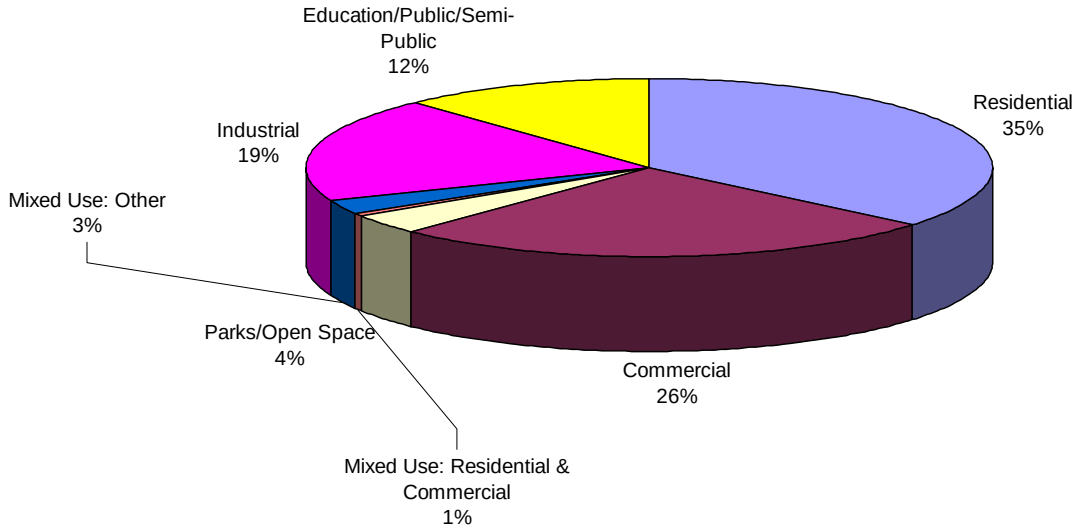
Dumbarton Proposed Rail

Table 29:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	5,778	6,520	8,638	9,977	23,839	18,108
Residential Density (per acre)	5.3	6.0	7.9	9.2	21.9	16.6

Total Acres	Residential Acres
2,962	1,088

When completed, the Dumbarton Rail Corridor will provide commuter service that will link Caltrain, ACE and BART along with several bus services in Union City. As indicated in the piechart below, the distribution of land uses is dominated by residential and commercial uses, with insignificant levels of mixed use.

Dumbarton Corridor Land Uses (% of all land within half-mile buffer)



With new construction along this corridor, especially in Redwood City and Union City, and the anticipated adoption of the Redwood City's Downtown Precise Plan in March 2007, Dumbarton will likely meet and exceed 3434 threshold requirements (Nelson/Nygaard 2006). As indicated in the table, the General Plan compatible development easily exceeds *Projections* dwelling units through the forecast period.

Table 30: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Fremont	1982	2002	4,951	1,802
Menlo Park	1994	2004	5,049	3,336
Newark	1999	2005	1,397	838
Redwood City	1987	1992	6,915	5,467
Union City	2005	2025	10,477	8,376
Total			23,839	18,108

On a station by station basis, the General Plan compatible development exceeds *Projections* development in Union City, Redwood City, and Menlo Park. The only site with a discrepancy is Newark, in which *Projections* estimates for 2015 exceed the existing development potential under Newark's General Plan by 98 units. It is worthwhile to note that Newark's General Plan was adopted in 1992 with a 2007 horizon (along with a Housing element terminating in 2006). With the fourth round of RHNA allocations, there will be an opportunity for Newark to review its presently allowed densities.

While the mix of land uses in Dumbarton station areas closely resembles the mix of uses in the Capitol Corridor, Dumbarton residential densities are very low compared to regional norms. Even so, Dumbarton plans support *Projections* through the forecast horizon.

Table 31: Jurisdiction	**Specific Plan**	**Adopted**
Fremont	Centerville Specific Plan	1993/2006
Newark	Area Two Specific Plan	
Redwood City	Downtown Medical Campus Precise Plan	2003
Redwood City	Redwood City Downtown Area Plan	2001

Ferry Terminals

Table 32:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	17,536	21,164	30,374	38,341	75,720	37,652
Residential Density (per acre)	14.8	17.9	25.7	32.4	64.0	31.8

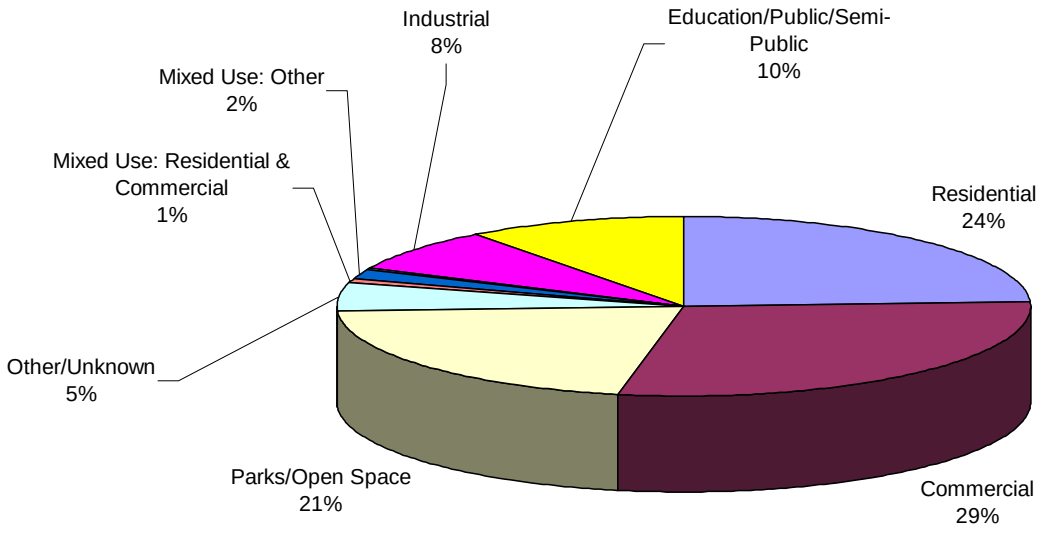
Total Acres	Residential Acres
4,108	1,183

While the other corridors in this report rely on rail stations and alignments to define their corridors, ferry terminals also require substantial capital investment. Ferry terminals also take cars off the road and reduce emissions. This table includes existing and future planned Ferry terminals.

Table 33: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Alameda	2002	2020	2,104	1,472
Benicia	1999	2005	166	109
Hercules	1994	2010	852	634
Larkspur	1998	2015	930	635
Oakland	1995	2010	14,468	1,447
Pittsburg	2000	2010	1,529	1,024
San Francisco	1991	2011	51,940	29,688
Sausalito			1,578	1,099
Tiburon			716	376
Vallejo			1,438	1,166
Total			75,720	37,652

Since every station is partly exposed to water, there is less land to develop in the immediate vicinity of the station area. Also, consistent with the recreational purposes that waterfront land is used for, one-fifth of all ferry station area land is in open space or parkland, as shown in the pie chart. Residential densities are fairly high and fairly compact in form. Comparing existing densities to planned densities reveals considerable capacity to increase the density of residential development.

Ferry Corridor Land Uses (% of all land within half-mile buffer)



Just as Ferry Corridor land uses differ from other corridors in terms of the high proportion of parks and open space in Ferry terminal areas, those differences are echoed and amplified when comparing the land use mix among Ferry stations to regional norms.

Also, Ferry station residential densities are significantly higher than residential densities that are allowed by regional plans as a whole. Even so, the forecast for ferry stations exceed the allowed number of units by about 800 by 2030. Relative to the forecast, this gap is small.

Table 34: Jurisdiction	Specific Plan	Adopted
San Francisco	Central Waterfront Area Plan	1998
San Francisco	Mission Bay Redevelopment Plan	1998
San Francisco	Northeastern Waterfront Area Plan	1990 (1997)
San Francisco	Rincon Hill Area Plan	1995
San Francisco	San Francisco Downtown Area Plan	1989
Vallejo	Mare Island Specific Plan	2005
Vallejo	Vallejo Downtown Specific Plan	

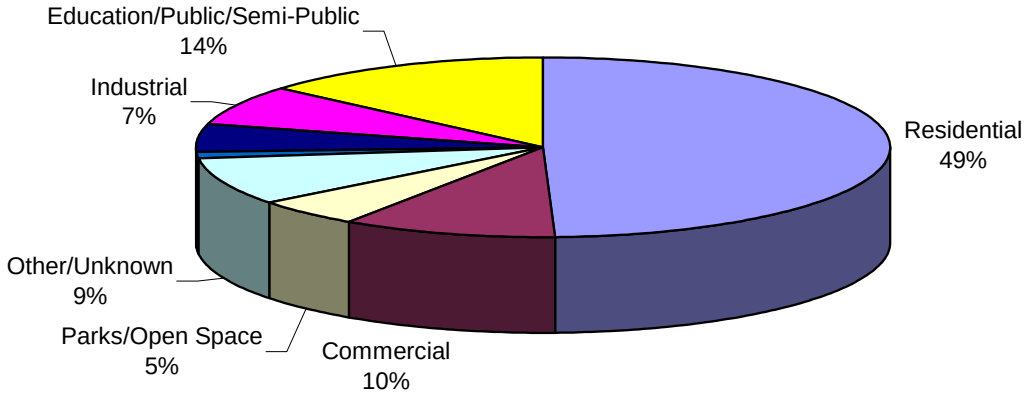
MUNI Light Rail

Table 35:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	174,788	179,616	194,608	210,162	665,649	415,000
Residential Density (per acre)	22.2	22.8	24.7	26.7	84.4	52.6

Total Acres	Residential Acres
12,516	7,886

Muni Light Rail is the principal rail transit within San Francisco. As noted in the table, MUNI's net build slightly exceeds *Projections* estimates for 2030.

MUNI Corridor Land Uses (% of all land within half-mile buffer)



The MUNI Corridor's portion of industrial land is the highest of any corridor in the Bay Area. Unlike many other Bay Area industrial areas, however, San Francisco's industrial areas encompass a very broad range of activity which the City terms production, distribution and repair uses (PDR). Essentially light industrial in character, the light rail passes through San Francisco's eastern neighborhoods highlighting along the way tensions between advocates of the corridors two largest land uses: PDR and residential uses.

Through a combination of area plans and permanent zoning controls, San Francisco plans to retain as much of PDR uses as it can while meeting increasing demand for housing. San Francisco is working to set aside land for PDR uses in particular in the Port, Hunters

Point Shipyard, and the Backlands. Using Urban Mixed Use zones as a transitional district between PDR and residential districts, these zones would emphasize residential uses but allow PDR to balance the demand for both housing and employment opportunities (San Francisco Planning Department 2005).

Already, residential densities along the MUNI Light Rail corridor are relatively high. Consistent with *Projections* for 2030, the development potential under existing plans is about 107,000 units. This potential is dependent upon San Francisco maximizing allowed densities over time, and moderate to high levels (20 to 30 percent residential share of mixed use square footage) of residential uses in primarily commercial uses.

The half-mile buffer around the light rail alignment includes land subject to Area Plans. Because Area Plans essentially supersede San Francisco's General Plan, ABAG staff also considered Area Plans developing the General Plan compatible development potential.

Table 36: Jurisdiction	Specific Plan	Adopted
San Francisco	Central Waterfront Area Plan	1998
San Francisco	Chinatown Area Plan	1995
San Francisco	Civic Center Plan	1989
San Francisco	Mission Bay Redevelopment Plan	1998
San Francisco	Northeastern Waterfront Area Plan	1990 (1997)
San Francisco	Rincon Hill Area Plan	1995
San Francisco	San Francisco Downtown Area Plan	1989
San Francisco	South Bayshore Area Plan	1995
San Francisco	Western Shoreline Plan	1984

The Area Plans provide additional specific information about San Francisco's intentions for their respective areas. For Rincon Hill, the City identified redevelopment opportunities and envisions high-rise housing for this area and envisions housing about 10,000 new residents. Chinatown's plans envision further economic and housing development of this neighborhood while protecting its historic character. The Downtown Area plan envisions adding an annual average of 1,000 to 1,500 dwelling units.

Comparing MUNI land uses to regional norms, land uses along the MUNI corridor are evenly split between residential uses and other uses. Considering the Third Street extension alone, MUNI land uses mix a much higher proportion of industrial uses than other corridors. In this case, mixed use land also occupies a significant share of the land use mix.

SMART Proposed Rail

Table 37:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	15,587	19,337	22,421	24,212	49,700	35,340
Residential Density (per acre)	5.0	6.3	7.3	7.8	16.1	11.4

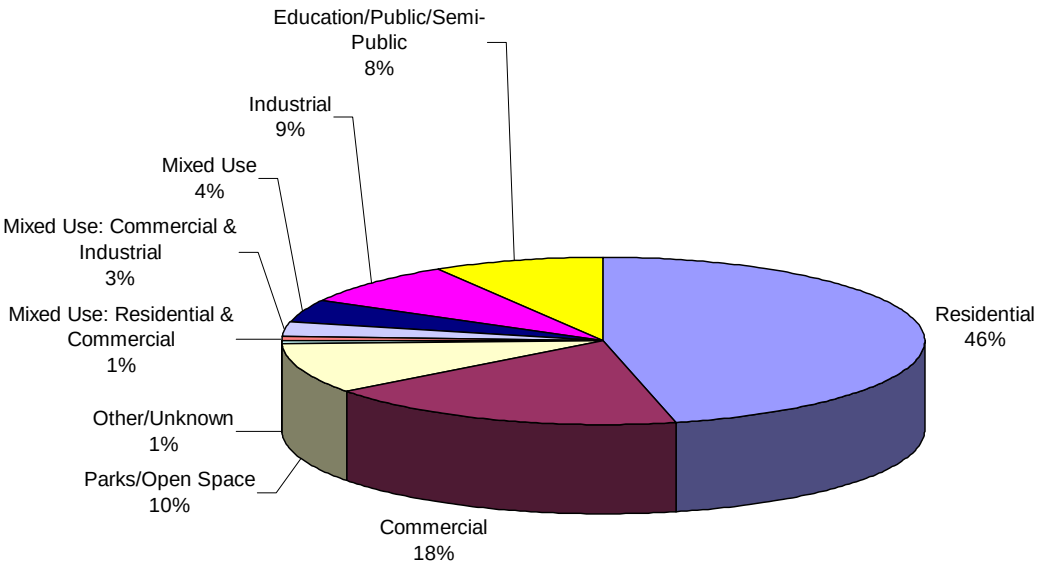
Total Acres	Residential Acres
5,617	3,089

The Sonoma Marin Area Rail Transit (SMART) is another 3434 program corridor. Consistent with Nelson/Nygaard's study, surplus development potential was identified in Petaluma and San Rafael. Further analysis of the other station areas along the SMART corridor indicates Rohnert Park, Marin Civic Center and Healdsburg have some surplus capacity, and that prior to 2015 there will be consistency problems with Cloverdale, Corona, Cotati, Larkspur and both station areas at Novato.

Table 38: Corridor Estimates by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Cloverdale	2002	2020	3,880	2,383
Corte Madera	1982	2002	1,318	919
Cotati	1994	2004	1,274	792
Healdsburg	1999	2005	4,631	3,033
Larkspur	1987	1992	2,981	2,098
Marin County	2005	2025	1,253	889
Novato	2002	2020	1,679	958
Petaluma	1994	2010	4,356	3,322
Rohnert Park	1998	2015	7,830	6,289
San Rafael	1998	2020	6,674	5,260
Santa Rosa	1998	2010	2,045	1,374
Windsor	2000	2010	2,229	1,110
Total			49,700	35,340

Consistent with the ex-urban setting of these cities, residential densities are fairly low, even though the analysis covers properties within transit station areas, many low density uses exceed the acreage size of higher density districts. For example, in Cotati, there are about 250 acres of low density residential uses compared to 50 acres of high density (30 units per acre) within the station area. Even with Cotati's ongoing effort on a Downtown Specific Plan, an anticipated net number of units in the downtown area will not exceed four hundred units, an insufficient amount to meet *Projections* forecast.

SMART Corridor Land Uses (% of all land within half-mile buffer)



As the pie chart above indicates, there is a fairly broad mix of uses within the SMART corridor even though most of the residential uses permit low residential densities. With similar levels of industrial land, parks and commercial space, SMART generally resembles the diversity of land uses at the aggregate regional level, except that there is somewhat more residential land in the corridor.

During 2007, Marin county is undergoing a county General Plan update. While this process would also tackle housing issues and the regional housing needs allocation, given the uncertain future of SMART and strong local opposition to higher residential densities, expectations about more residential development consistent with *Projections* may not be met.

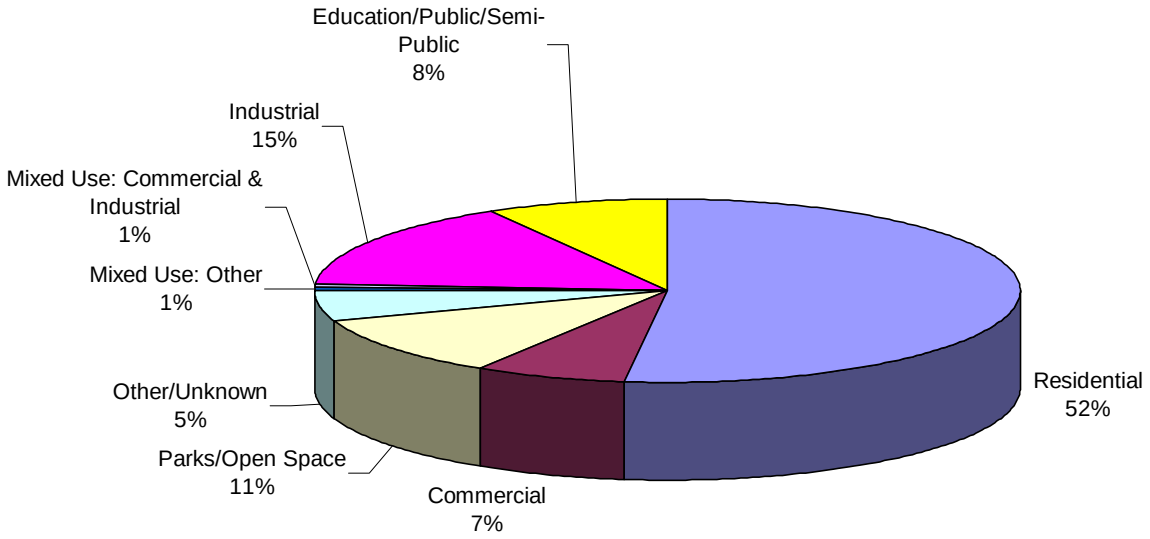
VTA Light Rail

Table 39:	*Projections* 2005: 2000	*Projections* 2005: 2010	*Projections* 2005: 2020	*Projections* 2005: 2030	Planned: GrossBuild	Planned: NetBuild
DUs	70,878	87,599	108,554	134,968	348,963	244,167
Residential Density (per acre)	2.4	3.0	3.7	4.6	12.0	8.4

Total Acres	Residential Acres
55,725	29,083

Stretching over 42 miles, the Santa Clara Valley Transit Authority's (VTA's) light rail spans much of Santa Clara county with 62 stations. Because spacing between station areas is so short, VTA Light Rail is treated as a uniform corridor and summary statistics are provided for the corridor as a whole.

VTA Corridor Land Uses (% of all land within half-mile buffer)



As depicted in the graph above, slightly over half of the land within VTA's buffer is residential in character, while there is relatively little commercial and even less mixed-use. The land use pattern in aggregate resembles the pattern of a single-use residential district with adjoining commercial and open space. While the reality is more complex, with new mixed use development, especially in San Jose, there may be an overall imbalance in the distribution of land-uses that may complicate efforts to improve the region's jobs-housing balance.

Table 40: Corridor Estimates a by Jurisdiction	Start	End	Corridor GrossBuild	Corridor NetBuild
Campbell	2002	2020	10,345	6,369
Milpitas	1982	2002	3,998	2,758
Mountain View	1994	2004	13,787	10,547
San Jose	1999	2005	291,286	203,360
Santa Clara	1987	1992	10,707	7,975
Sunnyvale	2002	2020	18,841	13,158
Total			348,963	244,167

While *Projections* assumes steady residential growth and concurrently emerging patterns of higher allowed densities, these patterns are consistent with the existing General Plan and Specific Plan analysis. Broadly consistent with the distribution of land uses at the regional level, VTA is not currently characterized by the same high shares of commercial uses as BART and other transit corridors. In addition to encouraging greater density in the future, planning for potentially more commercial uses could increase the corridor internal trip capture rate, discouraging indirect demand for non-work trips.

Table 41: Jurisdiction	**Specific Plan**	**Adopted**
Milpitas	Midtown Milpitas Specific Plan	2002
Mountain View	451 Villa Precise Plan	
Mountain View	460 Shoreline Boulevard Precise Plan	1979
Mountain View	Evandale Precise Plan	1997
Mountain View	Mountain View Downtown Precise Plan	2004
Mountain View	Villa-Mariposa Area Precise Plan	1992
Mountain View	Whisman Station Area Plan	1999
San Jose	Alviso Planned Community	1999 (2020)
San Jose	Jackson-Taylor Planned Community	1987
San Jose	Midtown Planned Community	1992
San Jose	Rincon South Planned Community	1998
San Jose	Tamien Station Area Planned Community	1995
Santa Clara	Rivermark Master Community Plan	2003
Sunnyvale	Moffett Park	2004

Chapter 3: Benchmarking *Projections* and Market Analysis

For this Monitoring Report, the following market analysis considers three different aspects of the regional housing market, as described in the following sections:

- Benchmarking *Projections* against Plans
- Identifying Recent Development Patterns, and
- Modeling Market Demand for Transit Accessible Land

Combined, these three aspects frame our expectations about the size and distribution of residential growth in the context of local plans and how those plans relate to *Projections*, where residential development has actually gone in recent years, and to what degree is development near transit attractive to developers. Benchmarking *Projections* against plans identifies land use regulation constraints on the forecast, and recent development patterns retrospectively indicate the extent to which residential development has occurred near transit as a forerunner to potential future patterns, as identified in the last section. Finally, modeling market demand for transit accessible land describes the market premium transit accessibility conveys to station area land.

Benchmarking *Projections* against Plans

Benchmarking *Projections* against Plans is a straightforward consideration of incremental supply and incremental demand for housing along each corridor, with each corridor treated independently of other corridors. Since there is some overlap between corridors, the regional summary row yields different numbers than the sum of all corridors.

Comparing incremental supply to incremental demand is important because much of the acreage of these corridors is developed to some extent. Even with existing data sets concerning available land, calculating the remaining absorption capacity of corridor land under existing planned uses is complicated by the potential for multi-story residential uses, lack of information about the probability of redevelopment within corridors, and the peculiarities of ABAG's existing datasets.

The planned incremental supply is represented as the number of dwelling units allowed under planned land uses less the number of dwelling units in 2000, while *Projections* estimated demand is the difference between the number of units in 2000 and the projected number of units in 2030.

Table 42: Corridor	Δ between 2000-2030 (incremental demand)	Δ NetBuild-2000 (incremental supply)	Planned Surplus or Deficit
East 14th	20,805	137,445	116,640
El Camino	43,502	36,027	(7,475)
San Pablo	26,317	31,440	5,123
ACE Rail	9,907	13,888	3,981
BART	102,169	196,993	94,824
eBART	6,948	4,014	(2,934)
tBART	4,291	48	(4,243)
BART to San Jose	28,767	35,245	6,478
Caltrain	49,679	87,907	38,228
Caltrain Extension	6,973	4,150	(2,823)
Capitol	13,248	32,313	19,065
Dumbarton Proposed Rail	4,199	12,330	8,131
Ferry Terminals	20,805	20,116	(689)
MUNI Light Rail	35,374	240,212	204,838
SMART Proposed Rail	8,625	19.753	(8,605)
VTA Light Rail	64,090	173,289	109,199
Regional Corridors	308,916	916,854	607,938

While within many corridors there are some individual station areas whose General and Specific plans are deficient in terms of incremental supply, most transit corridors' planned capacity easily exceeds *Projections* estimated demand.

Some corridors, however do not appear to be able to meet the forecast. We identify the following corridors as having the greatest potential for not meeting *Projections* dwelling unit estimates based on their existing planned land uses:

- El Camino
- eBART
- tBART
- Caltrain Extension
- Ferry Terminals
- SMART

With the exception of El Camino, all of these corridors are currently proposed transit projects. With project funding there will be an added incentive for affected jurisdictions to plan for higher densities, consistent with *Projections*. Also, there is significant empirical evidence that rail stations have a positive property value impact on station areas, and with higher per square foot values there is increased market demand for higher density uses (Knaap, Ding and Hopkins, 2001).

Identifying Recent Development Patterns

In this section, we are concerned with the extent of recent development activity within station areas, compared to the station areas' respective counties. Development patterns can be analyzed by examining the pattern on a map, and by statistical analyses to see if recent development is occurring in different locations than it has historically. Over time, comparisons of such development patterns can be used to identify trends.

Drawing on the Existing Land Use Database, all parcels indicating construction since 2000 were selected and those parcels' centroids were mapped. Because parcel sizes are larger outside the urban footprint, there is a visual distortion outside of urban areas that may make rural development look even more scattered than it really is. However, at the level of resolution depicted in the following maps much of that distortion is washed out.

The following maps and accompanying analysis include all counties except for Napa and Sonoma. Presently, there are some inconsistencies in the Existing Land Use database and staff is working to resolve these issues.

Methods

As noted above, staff queried the database to identify parcels that have had construction since 2000. Because the term "development" is unclear, a set of criteria were established in the following analysis to identify "developed" parcels. A combination of criteria was used because none of the appropriate variables was completely available for all parcels in the Existing Land Use database.

If the empirical question we are asking is "has there been relatively more development in station areas or corridors than in the rest of their respective counties?," we can answer this question through measuring recent development in terms of:

- total acreage developed,
- intensity of development
- and relative concentration of development.

While there are other measures of development patterns that could be used, these three measures are appropriate for small to large area comparisons. Given the compact geometry of station areas and corridors, a simple comparison of mean values drawn and compared across geographies is useful in terms of accounting for observed patterns.

In the following analysis, total acreage developed was defined as all parcels that were identified as being built upon between 2000 and 2004, and comparisons are framed in the first table, with development activity compared in station areas, corridors and the county at large. Given acreages are exclusive to the geography they are associated with, in other words, county acreages do not include corridor areas or station areas. While state highway corridors and station areas may overlap, they are treated as distinct geographies.

In the following table sets, a measure of intensity, residential density, and a measure of concentration, proportional calculations of dwelling units, are benchmarked against county mean scores.

For this analysis, staff chose the number of bedrooms that were constructed over this time period as the residential unit of analysis. While other choices, such as number of dwelling units were available, those data sets were often incomplete or inconsistent with other data for the same parcels. For parcels labeled with some multi-family use, there was no consistent set of data indicating how many units were on each parcel.

Instead, the dataset of bedrooms had to be used to calculate the number of dwelling units. Staff estimated dwelling units by counting one unit for every parcel with just one bedroom, and 0.4 units per bedroom for parcels with two or more bedrooms. This multiplier was chosen to take into account that larger homes may have three or more bedrooms.

Intensity of development is operationalized through a calculation of bedroom density. Calculating values based on the raw variation of new construction of bedrooms on every parcel is flawed because that calculation will not, by itself, take into account parcel size, which, on average, steadily diminishes with increasing proximity to urban centers. Consequently, bedrooms per acre are used to determine if the development in the smaller station areas is more intense than outside those areas.

In a second test, for each parcel a value is calculated for acres with bedroom development as a proportion of the total acreage for the relevant reference geography. This second test answers the question about the overall distribution of development, allowing comparisons between corridors and counties.

Why do statistical testing when you are working with the entire known dataset of parcels? Since statistical tests are usually conducted on phenomena to estimate the true underlying dataset parameters when those parameters are unknown, working with data that we assume to be the entire set of two groups begs that question. Unfortunately, in data collection there is often a high noise-to-signal ratio, with “dirty” data clouding the analysis. Mistakes in the data lead to lots of data variability and consequently mistaken conclusions about land characteristics, while statistical testing is a tool that can part the noise-to-signal “cloud.”

T-tests are statistical tests that assess whether the means of two groups differ from one another. In the following section, with each summary table, there is a T-test table with results and contextual indicators. These indicators are the size, the mean value, and the standard deviations of the samples.

In the first column, a statement of the intent of each consecutive T-tests given, followed by a simple algebraic expression for testing on each statement’s null hypothesis. The P-Value indicates whether or not a particular null hypothesis can be rejected. A P-Value of 0.000, indicates that the applicable hypothesis can be rejected, while a P-Value of 1.00 cannot be rejected.

For each county and each T-test we propose three hypotheses, each testing for a particular directional relationship between the means of corridors and counties. These tests are:

- Station areas are no different from the county at large
- Station areas have more development than the county at large
- Station areas have less development than the county at large

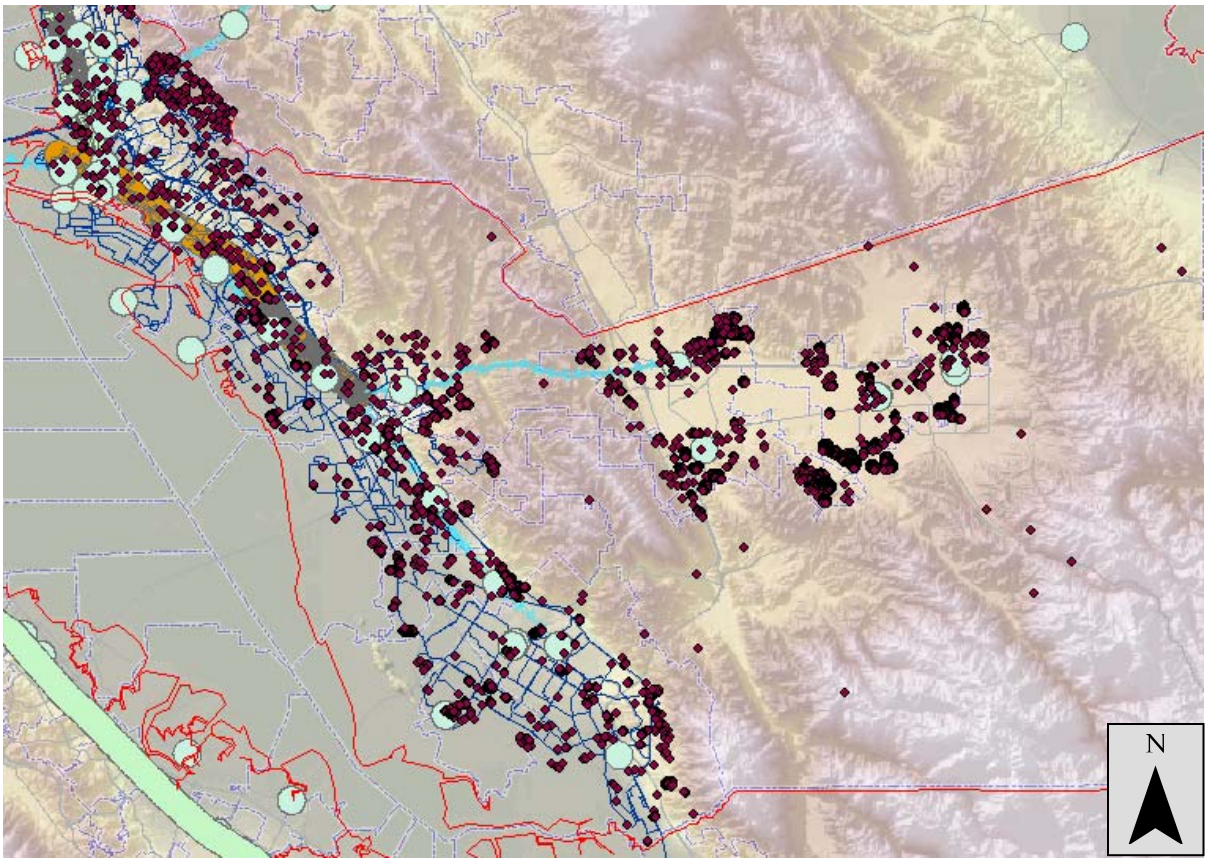
By winnowing down what we can reject, we can arrive at a statement for each relationship we look at and make a claim that the direction of the relationship is statistically valid.

Reading the tables

In each table there is a set of three questions, which are discussed above, comments about how those questions are operationalized in the T-test, the statistical results and conclusions respective of the results at the given critical value of 0.05, which is a standard value in the social sciences.

With each table there is a set of contextual indicators. The "size" term refers to the number of observations for each test, the "mean" refers to the average value, and the standard deviation "Std. Deviation," is a measure describing how useful the mean is in terms of describing the underlying data. If the standard deviation is 0, then all of the values in the range are the same, if the standard deviation is low proportionate to the mean, then we can say that the most values are clustered closely around the mean, and therefore the mean is a relatively good descriptor of the range of values. If the standard deviation is high with respect to the mean, then the mean is not a good indicator of the data distribution.

Alameda



Parcels developed since 2000 are highlighted as purple dots in the map above. While there is significant development activity near transit corridors, there is also development away from those corridors in the eastern portion of Alameda county. The large green circles show station areas. The orange band in Oakland, San Leandro and the unincorporated county is East 14th. The green band directly north of it is San Pablo Avenue.

Table 43:	"Developed" Acres since 2000	Total Acres	Percent of all area acres
East 14th	94	8,485	4.4%
San Pablo	80	10,816	5.6%
Station Areas	830	18,707	4.0%
County	4,445	192,519	2%

Table 44: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the residential density the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0414	Reject	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.9793	Do Not Reject	Yes
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.0207	Reject	No

Statistical Diagnostics	Station Areas	County
Size	2915	5575
Mean	28.21	26.28
Std. Deviation	27.23	59.84

As the table above indicates, the evidence for this test series suggests that the difference in units per acre (28 in Alameda station areas versus 26 in the county) is meaningful and significant. All other things being equal, Alameda station areas have been developed more intensely than other county areas.

Table 45: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the proportional residential development the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0010	Reject	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.9995	Do Not Reject	Yes
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.0005	Reject	No

Statistical Diagnostics	Station Areas	County
Size	2915	5575
Mean	9.92	6.79
Std. Deviation	51.08	2.98

Proportionate to all of the acreage developed within Alameda county, there have been more residential units built within station areas than outside of station areas between 2000 and 2004.

Contra Costa

Contra Costa parcels developed since 2000 are highlighted in green, and are much more scattered than Alameda development. While there is activity along the corridors, there are also seemingly scattered patterns of development throughout the county.

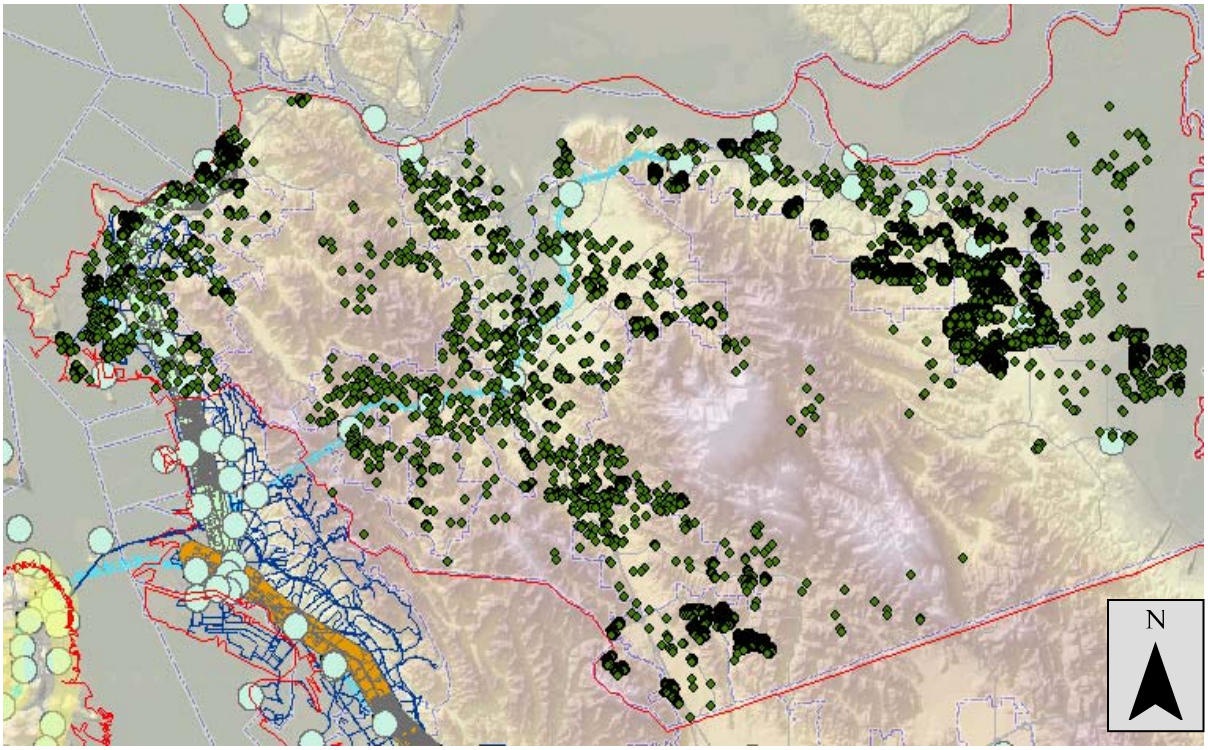


Table 46:	"Developed" Acres since 2000	Total Acres	Percent of all area acres
San Pablo	350	8,485	4%
Corridor	513	9,540	5%
County	9,418	460,851	2%

There has been relatively more development activity in terms of overall acres within the station areas and San Pablo than in the rest of the county, but station areas and San Pablo constitute a very small part of Contra Costa county.

Table 47: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the residential density the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0000	Reject	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	1.0000	Do Not Reject	Yes
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.0000	Reject	No

Statistical Diagnostics	Station Areas	County
Size	3289	15339
Mean	13.36	10.89
Std. Deviation	32.27	17.20

As the table above indicates, the evidence for this test series suggests that the difference in units per acre (13 in Contra Costa station areas versus 11 in the county) is meaningful and significant. All other things being equal, Alameda station areas have been developed more intensely than other county areas.

Table 48: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the relative residential development the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0000	Reject	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.0000	Reject	No
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	1.0000	Do not Reject	Yes

Statistical Diagnostics	Station Areas	County
Size	5,103	9,907
Mean	4.00	4.16
Std. Deviation	32.27	17.20

While development is somewhat denser within station areas in Contra Costa, it appears that there is more development outside of station areas in Contra Costa between 2000 and 2004.

Marin

With a relatively small number of station areas in the county and generally low levels of allowed residential density, most new residential development has occurred in the eastern half of Marin but not in station areas.

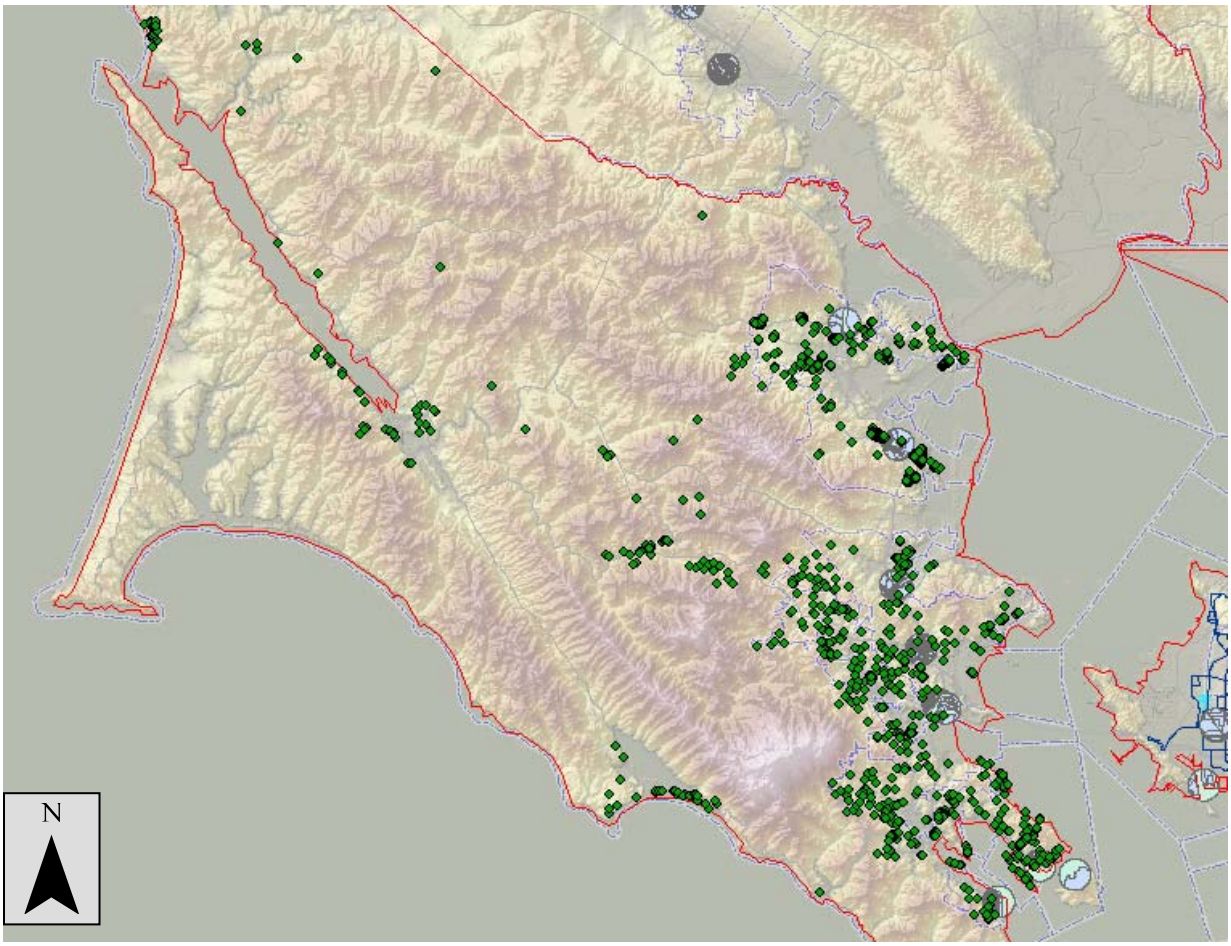


Table 49:	"Developed" Acres since 2000	Total Acres	Percent of all area acres
Corridor	75	4,000	2%
County	2,745	270,930	1%

Table 50: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the residential density the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0261	**Reject**	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.0130	**Reject**	No
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.9870	**Do not Reject**	Yes

Statistical Diagnostics	Station Areas	County
Size	75	1,754
Mean	3.08	3.38
Std. Deviation	1.11	1.00

As the table above indicates, the evidence for this test series suggests that the difference in units per acre (3 in Marin station areas versus 3.4 in the county) is meaningful and significant. All other things being equal, Marin station areas have been developed less intensely than other county areas.

Table 51: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the relative residential development the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0387	**Reject**	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.0194	**Reject**	No
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.9806	**Do not Reject**	Yes

Statistical Diagnostics	Station Areas	County
Size	75	1754
Mean	4.55	4.92
Std. Deviation	1.50	1.41

There has been relatively more development outside of station areas between 2000 and 2004 in Marin than inside station areas, even though the difference between station areas and non-station areas is small.

San Francisco

Compared to other jurisdictions, levels of overall development activity in San Francisco have been weak. Unlike other counties, however, heavy and light rail systems provide coverage for most of San Francisco. Given the geographic extent of station areas and rail transit within the city, it is not surprising that most development in San Francisco has taken place within corridor areas.

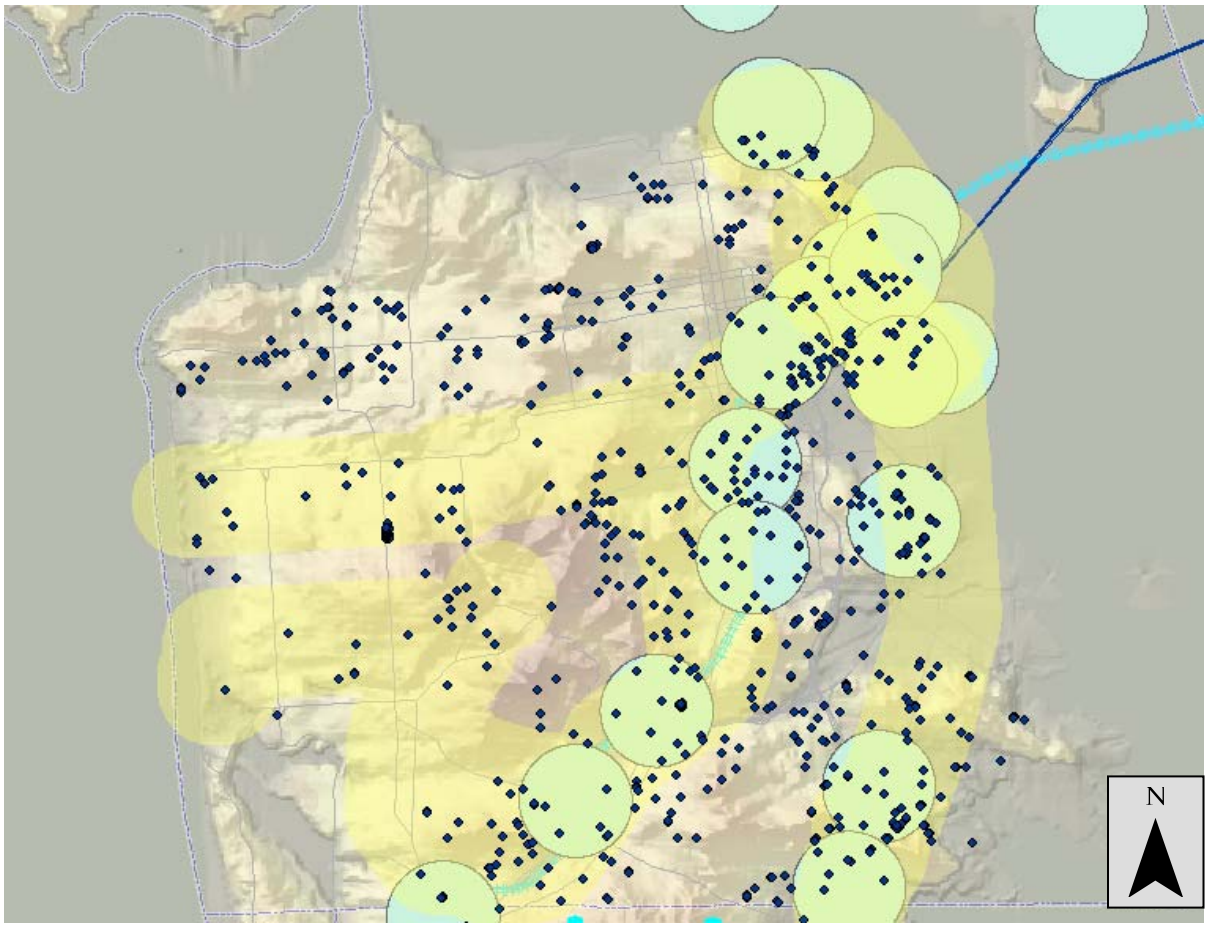


Table 52:	"Developed" Acres since 2000	Total Acres	Percent of all area acres
Corridor	306	1,992	15%
County	25	29,900	<1%

Table 53: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the residential density the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0492	Reject	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.9754	Do Not Reject	Yes
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.0246	Reject	No

Statistical Diagnostics	Station Areas	County
Size	821	276
Mean	2.12	1.28
Std. Deviation	12.14	0.49

As the table above indicates, station area densities in San Francisco are higher than the rest of the city. For this table, the number of units per parcel was calculated to yield residential densities. While residential densities are higher within transit corridors in San Francisco, given the wide geographic umbrella of transit coverage within the city, it is arguable that the entire city is within a transit corridor.

Table 54: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the proportional residential development the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0479	Reject	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.9760	Do Not Reject	Yes
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.0240	Reject	No

Statistical Diagnostics	Station Areas	County
Size	821	277
Mean	0.71	0.43
Std. Deviation	4.06	0.16

Unlike the other counties surveyed in this section, more total acres were developed in station areas than in the non-station areas of the city. Development is clearly taking place within station areas at a greater proportionate rate than other parts of San Francisco.

San Mateo

Unlike Santa Clara, on a parcel basis it appears that most development is taking place near if not within regional transit corridors. There is also a pattern of ex-urban development along the coastline, however, in terms of "dot density" there is more activity along the Caltrain corridor.

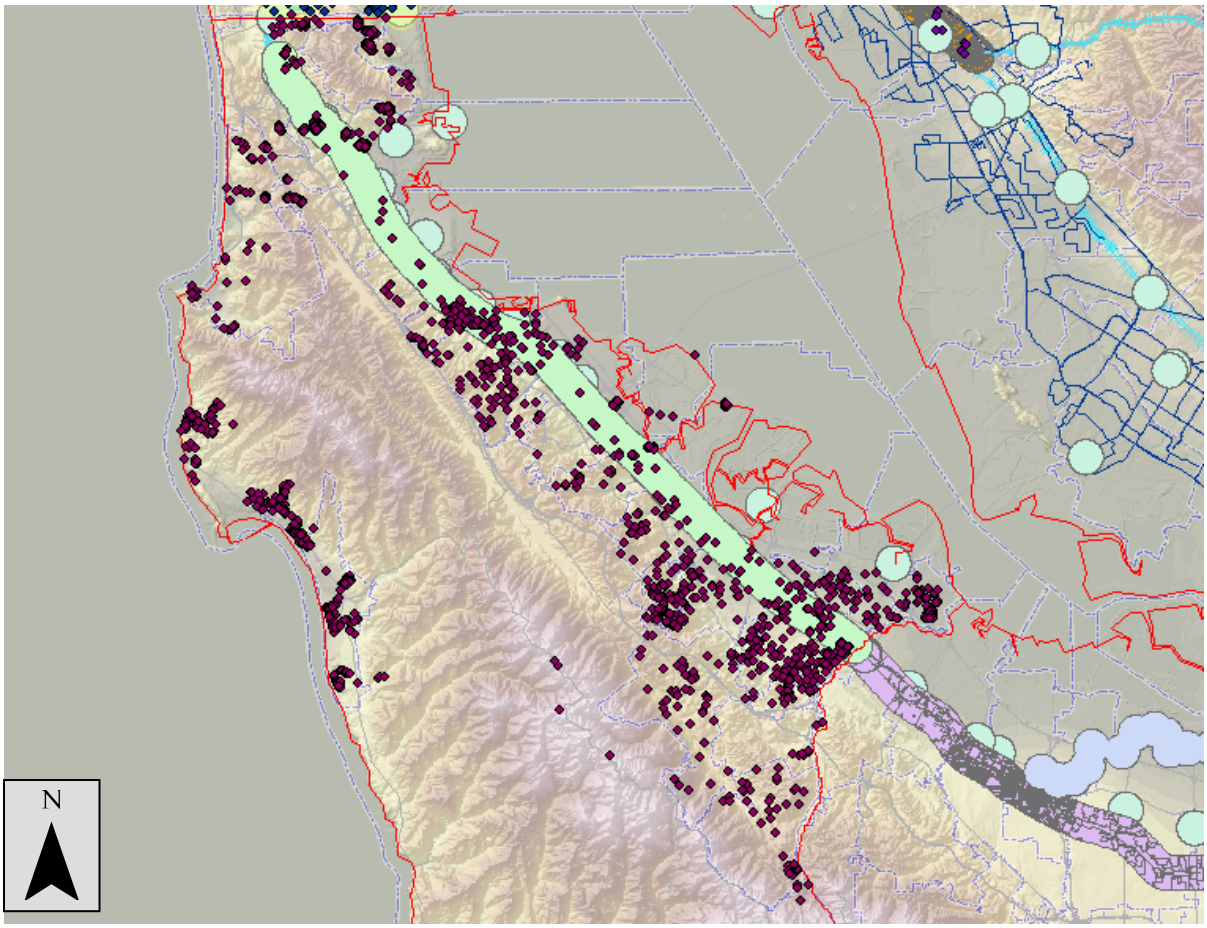


Table 55:	"Developed" Acres since 2000	Total Acres	Percent of all area acres
El Camino	587	13,200	4%
Corridor	722	9,407	8%
County	1,766	287,383	1%

Table 56: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the residential density the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.1803	Do not Reject	N/A
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.9099	Do not Reject	N/A
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.0901	Do not Reject	N/A

Statistical Diagnostics	Station Areas	County
Size	1472	1865
Mean	10.77	10.38
Std. Deviation	8.79	7.71

As the table above indicates, the evidence for this test series suggests that the difference in bedrooms per acre (11 in San Mateo station areas versus 10 in the county) is meaningful but so close that there is no real difference between densities inside station areas and outside those areas.

Table 57: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the relative residential development the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.1281	Do not Reject	N/A
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.0640	Do not Reject	N/A
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.9360	Do not Reject	N/A

Statistical Diagnostics	Station Areas	County
Size	1472	1865
Mean	8.20	9.26
Std. Deviation	23.30	14.48

Despite the visual screen, which appears to favor a conclusion that there has been more development in station areas, the results of this test indicate that in fact the possibility that there has been more development outside of station areas cannot be ruled out.

Santa Clara

As with both Alameda and Contra Costa counties, there is development, depicted as green dots, in the vicinity of transit corridors and in areas that are quite clearly not served by fixed guide-way. According to the visual screen, it would appear that there is more development in the urban periphery than in the denser urban core.

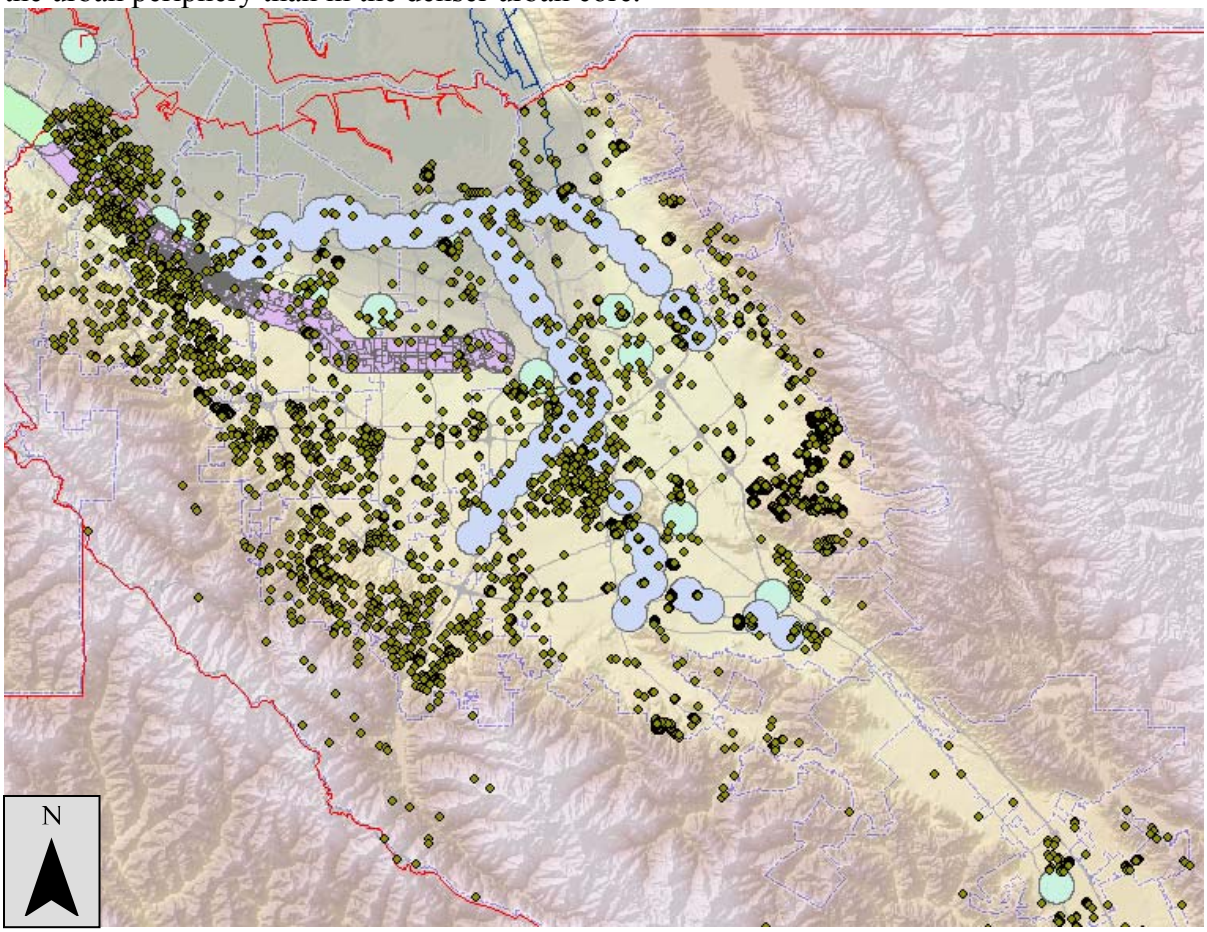


Table 58:	"Developed" Acres since 2000	Total Acres	Percent of all area acres
El Camino	148	9,453	2%
Corridor	697	12,602	6%
County	4,356	826,073	1%

Table 59: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the residential density the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0002	Reject	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.9999	Do not Reject	Yes
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.0001	Reject	No

Statistical Diagnostics	Station Areas	County
Size	1903	5610
Mean	26.62	16.28
Std. Deviation	17.14	207.20

As the table above indicates, the evidence for this test series suggests that the difference in bedrooms per acre (27 in Santa Clara station areas versus 16 in the county) is meaningful and significant. All other things being equal, Santa Clara station areas have been developed more intensely than other county areas.

Table 60: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the relative residential development the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0000	Reject	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.0000	Reject	No
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	1.0000	Do not Reject	Yes

Statistical Diagnostics	Station Areas	County
Size	1,903	5,610
Mean	4.02	4.94
Std. Deviation	1.15	1.04

Solano

As with both Alameda and Contra Costa counties, there is development, depicted as green dots, in the vicinity of transit corridors and in areas that are quite clearly not served by fixed guide-way. According to the visual screen, it would appear that there is more development in the urban periphery than in the denser urban core.

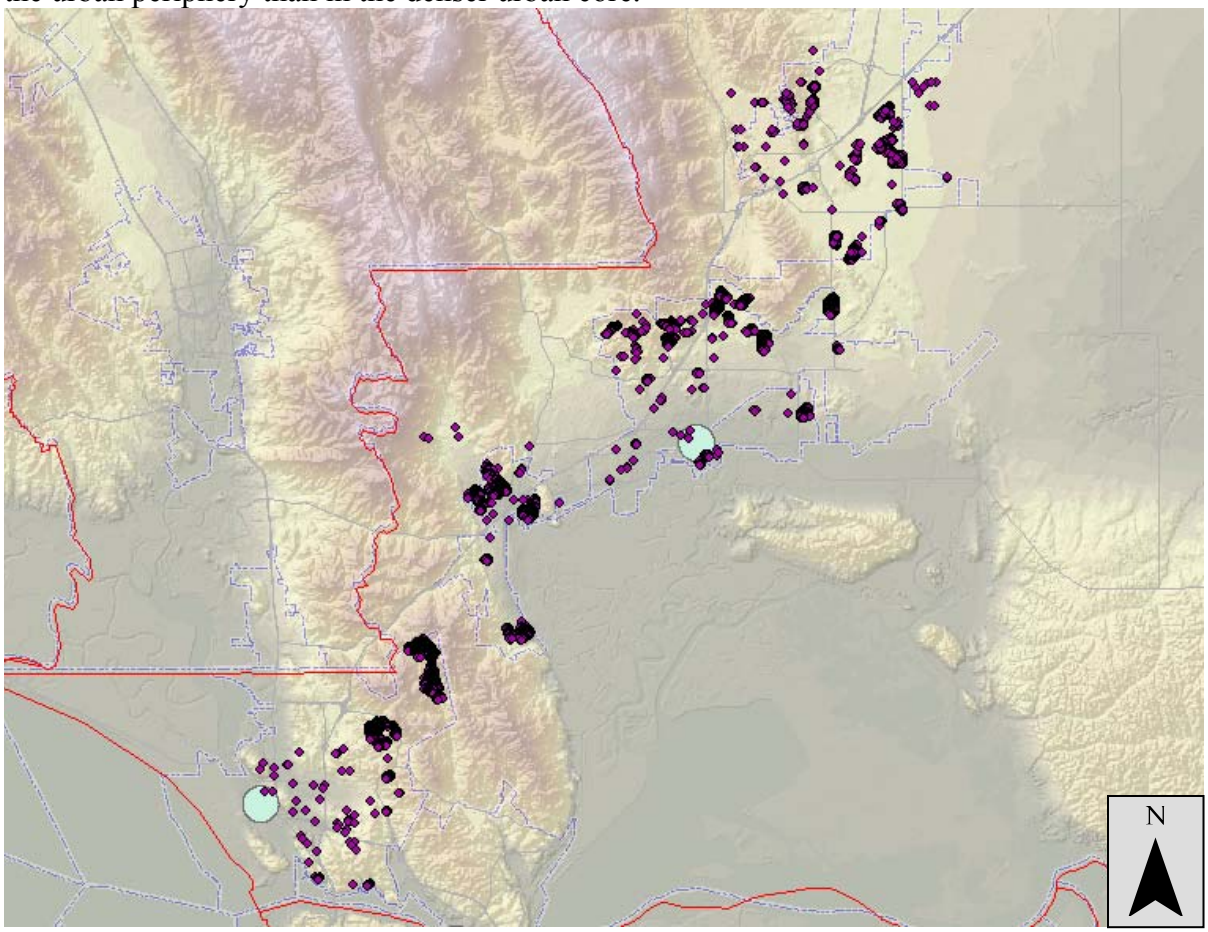


Table 61:	"Developed" Acres since 2000	Total Acres	Percent of all area acres
Corridor	4	1,000	>1%
County	1,176	47,677	2%

Table 62: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the residential density the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0000	**Reject**	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	1.0000	**Do Not Reject**	Yes
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	0.0000	**Reject**	No

Statistical Diagnostics	Station Areas	County
Size	39	5401
Mean	2.64	1.53
Std. Deviation	0.71	0.35

As the table above indicates, the evidence for this test series suggests that the difference in units per acre 2.6 in Solano station areas versus 1.5 in the county) is meaningful and significant. All other things being equal, Solano station areas have been developed more intensely than other county areas.

Table 63: Test Question	Null hypotheses	P-Value	At an α of .05	Conclusion
Is the relative residential development the same between station areas and the county?	H_0: $\mu_1 - \mu_2 = 0$	0.0000	**Reject**	No
Station area residential > County?	H_0: $\mu_1 - \mu_2 >= 0$	0.0000	**Reject**	No
Station area residential < County?	H_0: $\mu_1 - \mu_2 <= 0$	1.0000	**Do not Reject**	Yes

Statistical Diagnostics	Station Areas	County
Size	39	5401
Mean	8.95	12.99
Std. Deviation	2.40	2.95

Even though Solano station areas have been developed more intensely than other areas of Solano county, there has been more development, relative to total acreages in station areas versus the county, in the county than in station areas.

Recent Development Patterns Synthesis

Given that many Smart Growth type policies were only adopted within the last few years, and the fact that many developments can, through Developer Agreements, maintain entitlements to develop over several years, there have been numerous projects in the "pipeline" which may be coming to fruition only recently. Consequently, the relatively modest level of station area development compared to county development should be viewed as the outcome of patterns established in the 1990s and earlier.

As the Existing Land Use database is developed over time, its usefulness as a retrospective scope on recent development activity will become more useful in evaluating the accuracy of *Projections*.

Modeling Market Demand for Transit Accessible Land

In the last few years scholars have produced a stream of empirical research devoted to measuring the market premium accessibility to transit conveys to nearby land (Cervero and Duncan 2001, Knaap et al 2001). The question is not, however, entirely academic. Transit accessibility, as capitalized into land values, signals the value the market places on transit and, through capitalization, may serve as an instrument for capital debt financing through Tax Increment Financing (Smith and Gihring 2006).

Both higher property values and TIF opportunities support *Projections* assumptions about development in the Bay Area over the next few decades by providing economic justifications for the increasing intensification around transit stations that the forecast assumes. In this section, we will review findings from the research literature that elaborate on this issue and present a hedonic model case study using BART station areas in Alameda county.

Cervero and Duncan (2001) explain that different fixed guideway technologies invoke different scale economies for land and therefore are differently capitalized. Light Rail, such as VTA, is assumed to experience the least capitalization effects of rail because the accessibility advantage conveyed by station areas is moderated by the relatively slow speeds and the short distances between station areas, which diffuses the advantage of any one location. Heavy rail, such as BART, experiences more robust capitalization effects than light rail precisely because station area spacings are further apart and therefore the accessibility advantage is heightened for nearby parcels. Commuter rail, such as CalTrain, is anticipated to provide benefits at some midway point between light and heavy rail.

A 1983 study found that capitalized land value changes accounted for 36 to 40 percent of the capital cost of rapid rail transit in Chicago (Anas 1983). Summarized in the table below, Cervero and Duncan show significant gains to commercial land from proximity to rail:

Table 64: Rail/Highway Proximity	Dollar per Square Foot benefit (1999 dollars)
LRT station within ¼ mile	$4
CalTrain station within ¼ mile	$25
Freeway within ½ mile	-$1.88

While Cervero and Duncan report significant capitalization effects for commercial properties in Santa Clara county, most studies have focused on capitalization effects on residential property.

In a study of light rail plans in Portland, Knaap, Ding and Hopkins found that there were significant impacts to residential land after development plans were announced. Within one mile of light rail station areas, parcels gained nine percent of their value due to the announcement, and within the half-mile radius, parcels jumped by 36 percent (2001).

Tax Increment Financing and Benefit Districts

Under California Public Utilities code, Special Benefit Districts may be created along rapid rail transit stations. Used in 1985 to fund segments of the Metro Red Line in Los Angeles, these districts were designed to assess properties at a rate falling proportionately in distance

from station areas. Given nexus constraints, benefit districts may still be useful in terms of capturing ongoing property gains from infill development around transit stations. Creating a virtuous circle of infrastructure improvements and increasing density around station areas, these policy instruments may be useful in supporting growth in transit areas and support the policy based intentions of *Projections*.

While the pecuniary effects of proximity to station areas are weak overall, they do exist. As this section demonstrated, regional markets do support *Projections* estimated demand. In the next chapter, we discuss state and regional programs, as well as local ballot initiatives, that address Smart Growth in the Bay Area.

Chapter 4: Supporting Smart Growth through regional policies and legislation

Having shown that plans support *Projections* and that markets support Smart Growth development, we now discuss the role of state and regional efforts in supporting Smart Growth through legislation and policies. First, we describe the Smart Growth Livability Footprint effort and the relationship between those principles and forecast assumptions. Subsequently, we describe recent legislative activities and local policies that address Smart Growth. We conclude with a section on ABAG and MTC policies that further Smart Growth principles.

In partnership with the other regional agencies (which includes the Metropolitan Transportation Commission, the Bay Area Air Quality Management District, the Bay Conservation and Development Commission, and the SF Bay Regional Water Quality Control Board) and a group of stakeholders from the social equity, environmental and economic caucuses, ABAG developed a Regional Smart Growth Vision in March 2002. This Vision was created out of a two-year effort to establish principles and strategies for how the nine-county Bay Area can grow smarter and become more sustainable over the next 20 years and beyond.

County-wide public workshops were held in all nine Bay Area counties (eighteen weekends in all), where information and ideas were gathered from the local elected officials, planning staff, interested citizens and advocacy groups. Information from these workshops was then sorted, evaluated and compiled into a series of reports and maps, all of which ultimately led to the articulation of a Smart Growth Vision for the Bay Area. This process was the first of its kind to be completed in California.

In 2002, four Bay Area regional agencies, the Association of Bay Area Governments, the Metropolitan Transportation Commission, Bay Area Air Quality Management District, and Regional Water Quality Control Board adopted the Smart Growth Preamble and Principles as part of the Smart Growth Livability Footprint.

One of the goals of this process was for ABAG to use the Vision in its economic and demographic *Projections*. ABAG's policy-based *Projections 2005* assigns growth potential to local jurisdictions following approximately the pattern that the Smart Growth Vision intended.

While the workshops focused on providing a vision for the future, *Projections 2005* continues the process of implementing that vision. It is a practical forecast for the region designed around policy changes that reshape the form and distribution of development.

Therefore, it is useful to review the adopted Smart Growth Preamble and associated principles to provide a policy context for the regional analysis.

Smart Growth Preamble

Current land-use patterns in the San Francisco Bay Area are putting intense pressure on the economic, environmental and social wellbeing of the Bay Area and of surrounding regions. The projected addition of over one million new residents and one million new jobs in the

coming decades will further challenge our ability to sustain the high quality of life we enjoy today.

To help meet this challenge, the five regional agencies of the Bay Region—the Association of Bay Area Governments, Bay Area Air Quality Management District, Bay Conservation and Development Commission, Metropolitan Transportation Commission and the Regional Water Quality Control Board—along with the economy, environment and social equity caucuses of the Bay Area Alliance for Sustainable Communities, developed a set of Smart Growth policies.

The policies reflect the values articulated by workshop participants of the Smart Growth Strategy/Regional Livability Footprint Project and address Bay Area conditions. The policies are consistent with widely accepted notions of smart growth. They are meant to encourage meaningful participation from local governments, stakeholders and residents.

The policies provide a framework for decision-making on development patterns, housing, transportation, environment, infrastructure, governmental fiscal health and social equity that can lead us toward development of vibrant neighborhoods, preservation of open space, clean air and water, and enhanced mobility choices, while enhancing the Bay Area's relationship with surrounding regions.

Concurrently with this preamble, the regional agencies also adopted a set of Smart Growth Principles, which are detailed below. For each principle, there is a short explanation of what that principle entails. Following the principles, we discuss how these principles are implemented in *Projections* and how they relate to Monitoring.

Smart Growth Principles: Policies

Jobs/Housing Balance and Match

Improve the jobs/housing linkages through the development of housing in proximity to jobs, and both in proximity to public transportation. Increase the supply of affordable housing and support efforts to match job income and housing affordability levels.

Housing and Displacement

Improve existing housing and develop sufficient new housing to provide for the housing needs of the Bay Area community. Support efforts to improve housing affordability and limit the displacement of existing residents and businesses.

Social Justice and Equity

Improve conditions in disadvantaged neighborhoods, ensure environmental justice, and increase access to jobs, housing, and public services for all residents in the region.

Environmental, Natural Resource, Open Space and Agricultural Preservation

Protect and enhance open space, agricultural lands, other valued lands, watersheds and ecosystems throughout the region. Promote development patterns that protect and improve air quality. Protect and enhance the San Francisco Bay and Estuary.

Mobility, Livability and Transit

Support and enhance community livability by promoting infill, transit oriented and walkable communities, and compact development as appropriate. Develop multi-family housing, mixed-use development, and alternative transportation to improve opportunities for all members of the community.

Local and Regional Transportation Efficiencies

Promote opportunities for transit use and alternative modes of transportation including improved rail, bus, high occupancy (HOV) systems, and ferry services as well as enhanced walking and biking. Increase connectivity between and strengthen alternative modes of transportation, including improved rail, bus, ride share and ferry services as well as walking and biking. Promote investments that adequately maintain the existing transportation system and improve the efficiency of transportation infrastructure.

Infrastructure Investments

Improve and maintain existing infrastructure and support future investments that promote smart growth, including water and land recycling, brownfield clean-up and re-use, multi-use and school facilities, smart building codes, retention of historic character and resources, and educational improvements.

Local Government Fiscal Health

Improve the fiscal health of local government by promoting stable and secure revenue sources, reduced service provision costs through smart growth targeted infrastructure improvement, and state and regional sponsored fiscal incentives. Support cooperative efforts among local jurisdictions to address housing and commercial development, infrastructure costs, and provision of services.

Cooperation on Smart Growth Policies

Encourage local governments, stakeholders and other constituents in the Bay Area to cooperate in supporting actions consistent with the adopted Smart Growth policies. Forge cooperative relationships with governments and stakeholders in surrounding regions to support actions that will lead to inter-regional Smart Growth benefits.

Projections Forecast Assumptions and Parameters:

Accurate forecasting requires certain assumptions and methods. The following parameters indicate the most import assumptions and methods underlying *Projections 2005*. With each new *Projections*, staff reviews these assumptions and adjusts them according to the best available information.

(1) Slower job production
Updated information on employment suggests that the rate of job production since 2000 has been slower than expected. As a result the forecast of employment in 2005 is lower, and the overall growth in employment is less than in the previous forecast.

(2) Housing production of 20,000 to 25,000 units annually is assumed to continue throughout the forecast period. An increasing percentage of this production will be multifamily housing.
While this level of production is practical, the region will not achieve regional jobs- housing balance during the forecast period. Prior to the use of policy assumptions in the forecast, it was assumed that the amount of housing produced would decline, in response to lower demand from an aging population. In part, staff assumes that policies to promote housing production will counteract the effect of changing demographics. Those policies and housing prices are assumed to start shifting toward more multifamily housing.

(3) Smart Growth policies assumptions should be consistent with information obtained from ABAG's monitoring program.
In previous forecasts the Board has approved the assumption that smart growth changes to land use patterns would begin to gradually occur after 2010. Some support for this concept came from a survey of local jurisdictions performed by ABAG staff in spring 2004, where local jurisdictions provided information about smart growth policies.

While that survey was a useful tool, more specific information was needed in order to compare the *Projections* forecasts to existing land use and land use policies. That information has been developed through ABAG's monitoring program.

In response to the policy based forecasts that ABAG began producing with *Projections 2003*, the Federal Highway Administration (FHA) and Environmental Protection Agency (EPA entered into a staff agreement with ABAG and MTC. The goal was to ensure that the policy assumptions for the *Projections* forecast were reasonable, and comparisons were made to trends and policies at the local level. As that agreement has evolved, ABAG is providing general comparative information at a regional level, and specific comparisons of forecasts with local plans and policies for sixteen transit corridors across the region.

In order to undertake this effort, ABAG constructed GIS database that includes general and specific plans for all of the local jurisdictions in the region. The database currently includes the detailed general and specific plan information for every jurisdiction in the region.

Even after the GIS database is complete, some additional tasks remain. In particular staff must work with local jurisdictions to verify local plan information and compare it to land use assumptions and results from the *Projections* 2005 forecast.

While additional consultation and analysis need to take place, our preliminary results indicate that it is appropriate to assume more development near transit and in existing urban areas beginning in 2010 and gradually concentrating a higher percentage of development in those areas over the forecast period. In specific areas it is appropriate to assume higher levels of concentration, and in some, lower levels of concentration.

ABAG is also working with local jurisdictions to identify changes to existing land use, significant policy changes, and significant errors in the previous data. Information is now available on actual land uses in 2005. Policy changes like new general plans, or the designation of redevelopment areas should be considered.

(4) Staff should work with the Housing Methodology Committee and the Focusing Our Vision's Technical Advisory Committee to develop information and consider that information in our modeling for *Projections* 2007.
ABAG staff is working with these committees to develop specific information that will affect regional assumptions about growth patterns, and the potential for growth in specific jurisdictions. This information should be part of our forecasting process, even if it is not eventually used in these other efforts, or if it is not completely developed for these processes.

Local, State and other Regional Activities

Along with *Projections* assumptions, the Monitoring effort requires ongoing efforts to identify and track local government, state and regional activities. Structured within a framework defined by activity at the state level and by other regional agencies and their programs, local governments exercise final discretionary authority with respect to new development. In the following three subsections, we discuss how local land use policies and trends, state policies, infrastructure bonds and local measures, and other regional programs fit together with respect to Monitoring.

Local Land Use Policies and Trends

Under state law, every California local government is required to adopt a General Plan, a document outlining the preferred and likely development path each community will follow over time. Usually timed to sunset after a twenty year interval after adoption, the General Plan consists of several required elements. The two most pertinent elements for the purposes of this report are the Land Use element and the Housing element, which, unlike the other elements, is required to be updated every five years.

Of the 109 local general plans in the region, the land use element is twenty years or older in five jurisdictions, between fifteen and twenty years old in seven jurisdictions, and ten to fifteen years old in 24 jurisdictions. This indicates that some plans may not have a time horizon that extends to 2030.

The relative datedness of general plans in the region may significantly understate the development potential in local areas. ABAG's Local Policy Survey shows planning horizons of 2010 or less for 29 local land use plans.

The Association of Bay Area Governments' (ABAG) recent survey of local jurisdictions suggests that there is widespread support for including smart growth measures in their land

use policies and decisions. Many have already begun to include some type of smart growth measures.

ABAG, as part of a Metropolitan Transportation Commission (MTC) study, has been analyzing demographic and economic data around existing and proposed transit stations, and in specific major transit corridors. The three largest cities — San Jose, San Francisco, and Oakland — are actively pursuing policies that promote smart growth and TOD.

Data collected on TOD areas in the region suggest that in 2000 about 25 percent of all households and 39 percent of all jobs were near a transit station or within a major transit corridor. The *Projections 2005* forecast indicates that 30 percent of all households and 40 percent of all jobs will be near transit or within a major transit corridor by the year 2030.

While policies have been instituted and smart growth development patterns are beginning to occur, the amount of change is still small, but consistent with the assumptions used in *Projections 2007*, and those approved for *Projections 2005*.

Smart Growth Survey Results

As a way of beginning to assess likely changes in local policies, ABAG conducted an initial Smart Growth Survey. The survey was designed to provide general information on the level of support for a variety of policies.

The survey also gives us a general indication of the rate of change and an estimate of the amount of development potential. While the information obtained was much less than would have been obtained through the Local Policy Survey, the Smart Growth Survey is designed to yield a snapshot of the potential for local level policy change.

The mail survey was distributed in March 2004 to all 101 Bay Area cities as well as the nine county planning departments (which were asked to respond for the unincorporated portion of their county). The survey queried jurisdictions about whether they had adopted, or were considering, policy changes. By the end of April 2004, ABAG had received 95 responses, an 87-percent return rate. Based on population, the surveys which were returned represent almost 96 percent of the region's population. Even the county with the lowest return rate, San Mateo, had responses representing 83 percent of its population.

In contrast, the Local Policy Survey only updates about one-quarter to one-third of the cities and counties in the Bay Area during a two-year cycle. The Smart Growth survey also provides us with the policy rationale behind the development potential that is identified.

The Smart Growth questionnaire was not designed to measure the degree of change which is contemplated. Follow-up telephone and e-mail contacts attempted to identify the change in development potential for those jurisdictions that identified increases in density.

However, separating out the change in development potential from information identified in the Local Policy Survey was difficult. In some cases, local jurisdictions were reluctant to identify a specific level of additional potential. In other cases, it appeared that the potential was already included in the previous survey.

The survey indicates that:

• 89 percent of the respondents have adopted, or are considering adopting, smart growth policies. (85 out of 95)

• Looking only at policies that would increase densities, 75 percent of respondents have increased densities or have this issue under consideration.
• However, 31 percent of the respondents also indicate that conditions exist in their communities, which could limit density increases.

State Policies, Legislation, Infrastructure Bonds and Local Propositions

Like local land use policies, state legislation in areas such as local planning requirements, funding for new housing, and construction defect litigation could substantially increase construction and density. Regional programs can also promote more housing and improve the pattern of development.

In November 2006, California voters approved a number of Bond measures intended to pay for a variety of infrastructure projects. Pursuant to AB 29 (Hancock), the legislature will consider a bill for regional infill incentives, using 1C funds. The bill was recently amended from its original purpose of funneling infrastructure bonds through Councils of Government, to instead make the Department of Housing and Community Development directly responsible for managing the funds. While this particular structure weakens the original intent of the bill, there is a possibility that local governments may still need to show some adequate relationship between proposed projects and regional goals, such as Smart Growth.

Additionally, there were a wide variety of Bay Area measures on the ballot that have land-use or Smart Growth related impacts. As summarized by the *California Planning and Development Report* (Shigley 2006) below, Bay Area voters considered a wide range of initiatives. While support was high for state ballot initiatives in the region, regional transit and housing programs were rejected.

Alameda

Voters in Fremont defeated an initiative to rezone land near Coyote Hills Regional Park to agriculture in order to block a proposed 800 unit housing development.

Contra Costa

Voters approved a countywide urban growth boundary consistent with existing boundaries.

Marin

Measure R, the SMART Rail and Trial project, was narrowly defeated at the polls by one percent of the vote. Proponents of the measure hope to bring to bring the proposal back to voters in 2008.

San Mateo

Two measures authorizing redevelopment of quarries with housing of over 400 units were defeated in the cities of Brisbane and Pacifica.

Santa Clara

Voters rejected a slow growth initiative that would have increased minimum parcel sizes to 40 acres for many agricultural uses and 160 acres for rangeland. In Cupertino, two rezoning requests that would have provided for more than 500 units were defeated at the polls, while in Morgan Hill, voters approved a measure to increase downtown density and allow 100 additional units.

Solano

Rejecting a renewal of 1994's Orderly Growth Initiative, the policy prohibited most development on land zoned for agricultural or open space, comprising most of the county.

Sonoma

Voters approved the SMART Rail and Trial project, but it was narrowly defeated at the polls by one percent of the vote in Marin. Proponents of the measure hope to bring to bring the proposal back to voters in 2008.

Other legislative activity

Other bills proposed changes to the state requirements for the housing elements of local general plans.

- AB2980 (Salinas) would grant regulatory relief from the state review of local housing elements, allowing cities to self certify compliance if they agreed to build a share of their low and very low income housing with the minimum percentage to be determined.
- SB1592 (Torlakson) would require cities and counties to adopt or amend a specific plan for infill development and to include some specific incentives for infill development.
- AB2158 (Lowenthal) would revise procedures for determining shares of regional housing need for cities, counties and subregions in line with recommendations from the Housing Element Working Group — was enrolled and sent to governor for signature on August 25, 2004.

Regional Plans and Incentives

Focusing Our Vision (FOCUS)

In the Spring of 2006, the Bay Area, with the assistance of a state grant, commenced a multi-agency regional planning program called *Focusing Our Vision*, now more easily referred to simply as *FOCUS*. *FOCUS* builds upon a rich legacy of recent Bay Area regional planning efforts, in particular:

- *The Smart Growth Strategy / Regional Livability Footprint Project* and its "Network of Neighborhoods" regional vision;
- *The Smart Growth Preamble and Policies* adopted jointly by four regional agencies in 2002;
- The Transportation for Livable Communities (TLC) and Housing Incentive Program (HIP) initiatives;
- The smart-growth-policy-based *Projections 2003, 2005, and 2007;*
- The Transportation and Land-Use Platform in the 2005 Regional Transportation Plan, *Transportation 2030*;
- The Resolution 3434 Transit-Oriented Development Policy.

As part of that effort, ABAG convened a Technical Advisory Committee, composed of senior staff from around the Bay Area. The TAC looked at a variety of Smart Growth policies and through a complex GIS model, visualized what the potential spatial impacts of Smart Growth policies would be. In particular, the TAC looked at identifying Priority Development Areas as general areas where future growth ought to be concentrated.

After looking at a number of alternatives with the TAC, staff decided to concentrate on a single, simple map which was based solely on the most important regional policy considerations. The resultant map identifies potential priority locations which are (1) within existing communities; (2) near fixed transit; and (3) within areas where jobs exceed employed residents. Not only are these three key policy considerations powerful within their own right, they are also highly correlated with other lesser regional concerns. They represent comprehensiveness without adding complexity.

The final map does not demarcate potential Priority Area boundaries, nor does it identify potential or desirable development intensities. It only provides "signposts" or very general indicators to where Priority Areas might be. The map is purposely composed of uniform dots, rather than real geographic areas, to signal its highly generalized location. It is our intention to define more precise boundaries and desired development intensities directly with willing local government partners. No Priority Areas will be designated without agreement from the affected local government.

Staff proposed to the Joint Policy Committee that there be an open process allowing any local government to submit areas for priority-area consideration provided that these areas meet three basic entry criteria, and that they be:

- Within an existing community;
- Near existing or planned fixed transit (or served by comparable bus capacity);
- Planned (or planning) for more housing.

After submitting an application, areas may be further priority-ranked by other criteria, including:

- The presence of multiple or mixed-uses contributing to a complete community;
- The presence of job concentrations, providing nearby employment;
- Circulation and connectivity.

Along with identifying Priority Development Areas, FOCUS may also consider a possible hierarchy of priority "place types" with local governments, recognizing that not every place can be or wants to be like downtown San Francisco, but nevertheless could be a deserving priority for regional support. In addition, staff would propose to differentiate areas based on their level of planning readiness. Those with plans or developments in place would be designated as Priority Areas; those requiring new or additional planning would be classified as Potential Priority Areas.

Once designated as a regional priority, an area would be eligible to apply and compete for regional incentives. Priority Areas would be eligible for capital funding. Potential Priority Areas could apply for planning funds.

Regional Housing Needs Assessment (RHNA)

Straddling state law and regional policy, the Regional Housing Needs Assessment is a critical process for addressing California's housing crisis. The following tables summarize building activity during the third RHNA round (1999 to 2006), and in the next section we discuss policies underlying the fourth round of RHNA.

Table 65: Bay Area RHNA Performance, 1999 to 2006

County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
Alameda	46,793	30,580	16,213	65%	29,446	17,347	63%
Contra Costa	34,710	40,130	-5,420	116%	37,154	-2,444	107%
Marin	6,515	4,406	2,109	68%	3,717	2,798	57%
Napa	7,063	5,591	1,472	79%	5,378	1,685	76%
San Francisco	20,372	17,146	3,226	84%	13,696	6,676	67%
San Mateo	16,305	9,388	6,917	58%	8,433	7,872	52%
Santa Clara	57,991	43,681	14,310	75%	42,849	15,142	74%
Solano	18,681	17,663	1,018	95%	18,100	581	97%
Sonoma	22,313	17,254	5,059	77%	14,875	7,438	67%
Regional Total	**230,743**	**185,839**	**44,904**	**80%**	**173,648**	**57,095**	**73%**

Source: ABAG Analysis

As a region, the number of housing units produced is estimated to be 73 percent of the goal set by the state for 1999-2006. A comparison of permits to the allocation is more favorable at 80 percent. Nevertheless, while the numbers show significant construction activity, production fell short of the goal by about 57,000 units.

Table 66: Alameda County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
Alameda	2,162	558	1,604	26%	652	1,510	30%
Albany	277	52	225	19%	82	195	30%
Berkeley	1,269	1,251	18	99%	981	288	77%
Dublin	5,436	5,753	-317	106%	6,035	-599	111%
Emeryville	777	1,233	-456	159%	1,121	-344	144%
Fremont	6,708	2,484	4,224	37%	3,447	3,261	51%
Hayward	2,835	2,248	587	79%	2,617	218	92%
Livermore	5,107	3,615	1,492	71%	3,148	1,959	62%
Newark	1,250	311	939	25%	307	943	25%
Oakland	7,733	6,568	1,165	85%	4,732	3,001	61%
Piedmont	49	10	39	20%	1	48	2%
Pleasanton	5,059	2,156	2,903	43%	2,130	2,929	42%
San Leandro	870	1,068	-198	123%	979	-109	113%
Union City	1,951	1,610	341	83%	1,719	232	88%
Unincorporated	5,310	1,663	3,647	31%	1,495	3,815	28%
Total County	**46,793**	**30,580**	**16,213**	**65%**	**29,446**	**17,347**	**63%**

[a] *Housing permit data was calculated using Construction Industry Research Board records and covers the period 1999 to early 2006.*

[b] *Housing production figures were calculated from the California Department of Finance* ***E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark*** *and earlier versions of that report.*

While Alameda produced only 63 percent of its allocation, there was a lot of variability within the county. Emeryville, San Leandro and Dublin built more housing than their allocation, while the county's largest city, Oakland, produced slightly lower than the county average.

Table 67: Contra Costa County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
Antioch	4,459	4,691	-232	105%	4,603	-144	103%
Brentwood	4,073	9,434	-5,361	232%	9,375	-5,302	230%
Clayton	446	Permit data unavailable			150	296	34%
Concord	2,319	1,638	681	71%	1,325	994	57%
Danville	1,110	656	454	59%	700	410	63%
El Cerrito	185	60	125	32%	208	-23	112%
Hercules	792	2,075	-1,283	262%	1,673	-881	211%
Lafayette	194	Permit data unavailable			152	42	78%
Martinez	1,341	415	926	31%	473	868	35%
Moraga	214	Permit data unavailable			118	96	55%
Oakley	1,208	1,911	-703	158%	1,244	-36	103%
Orinda	221	177	44	80%	62	159	28%
Pinole	288	Permit data unavailable			168	120	58%
Pittsburg	2,513	2,794	-281	111%	2,598	-85	103%
Pleasant Hill	714	659	55	92%	371	343	52%
Richmond	2,603	2,137	466	82%	1,956	647	75%
San Pablo	494	579	-85	117%	337	157	68%
San Ramon	4,447	790	3,657	18%	4,185	262	94%
Walnut Creek	1,653	729	924	44%	1,160	493	70%
Unincorporated	5,436	11,385	-5,949	209%	6,296	-860	116%
Total County	**34,710**	**40,130**	**-5,420**	**116%**	**37,154**	**-2,444**	**107%**

[a] *Housing permit data was calculated using Construction Industry Research Board records and covers the period 1999 to early 2006.*

[b] *Housing production figures were calculated from the California Department of Finance* ***E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark*** *and earlier versions of that report.*

Contra Costa is the only county where permitting and production surpassed its allocation. Seven cities and the County exceeded their allocations. Brentwood led the way, having produced 230 percent of its allocation. In fact, the three East County cities of Brentwood, Oakley, and Antioch produced over 40 percent of the county's housing since 1999.

Table 68: Marin County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
Belvedere	10	21	-11	210%	2	8	20%
Corte Madera	179	96	83	54%	143	36	80%
Fairfax	64	16	48	25%	2	62	3%
Larkspur	303	39	264	13%	18	285	6%
Mill Valley	225	71	154	32%	84	141	37%
Novato	2,582	2,281	301	88%	2,088	494	81%
Ross	21	22	-1	105%	17	4	81%
San Anselmo	149	63	86	42%	28	121	19%
San Rafael	2,090	850	1,240	41%	670	1,420	32%
Sausalito	207	68	139	33%	45	162	22%
Tiburon	164	141	23	86%	88	76	54%
Unincorporated	521	738	-217	142%	532	-11	102%
Total County	**6,515**	**4,406**	**2,109**	**68%**	**3,717**	**2,798**	**57%**

[a] *Housing permit data was calculated using Construction Industry Research Board records and covers the period 1999 to early 2006.*
[b] *Housing production figures were calculated from the California Department of Finance **E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark** and earlier versions of that report.*

Next to San Mateo county, Marin was the most poorly performing county in terms of housing production in the Bay Area. In the third round, only the unincorporated county met its allocation and exceeded it. Novato, Ross and Corte Madera came close to meet their goals while the performance of other cities was dismal.

Table 69: Napa County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
American Canyon	1,323	2,291	-968	173%	1,995	-672	151%
Calistoga	173	63	110	36%	75	98	43%
Napa	3,369	2,296	1,073	68%	2,560	809	76%
St. Helena	142	98	44	69%	93	49	65%
Yountville	87	45	42	52%	39	48	45%
Unincorporated	1,969	798	1,171	41%	616	1,353	31%
Total County	**7,063**	**5,591**	**1,472**	**79%**	**5,378**	**1,685**	**76%**

[a] *Housing permit data was calculated using Construction Industry Research Board records and covers the period 1999 to early 2006.*
[b] *Housing production figures were calculated from the California Department of Finance **E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark** and earlier versions of that report.*

Table 70: San Francisco City & County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
San Francisco	**20,372**	**17,146**	**3,226**	**84%**	**13,696**	**6,676**	**67%**

[a] *Housing permit data was calculated using Construction Industry Research Board records and covers the period 1999 to early 2006.*
[b] *Housing production figures were calculated from the California Department of Finance* ***E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark*** *and earlier versions of that report.*

While San Francisco permitted a large proportion of its housing allocation, only 67 percent was actually produced, the largest gap in the region between permitted and produced housing. With a significant backlog of projects in the pipeline, San Francisco faces numerous hurdles in terms of pushing projects through to completion.

Table 71: San Mateo County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
Atherton	166	103	63	62%	25	141	15%
Belmont	317	252	65	79%	286	31	90%
Brisbane	426	65	361	15%	379	47	89%
Burlingame	565	255	310	45%	146	419	26%
Colma	74	84	-10	114%	119	-45	161%
Daly City	1,391	400	991	29%	444	947	32%
East Palo Alto	1,282	707	575	55%	461	821	36%
Foster City	690	475	215	69%	525	165	76%
Half Moon Bay	458	337	121	74%	376	82	82%
HIllsborough	84	129	-45	154%	57	27	68%
Menlo Park	982	183	799	19%	56	926	6%
Millbrae	343	133	210	39%	-147	490	-43%
Pacifica	666	181	485	27%	215	451	32%
Portola Valley	82	78	4	95%	48	34	59%
Redwood City	2,544	458	2,086	18%	785	1,759	31%
San Bruno	378	695	-317	184%	541	-163	143%
San Carlos	368	175	193	48%	302	66	82%
San Mateo	2,437	1,338	1,099	55%	1,276	1,161	52%
So. San Francisco	1,331	1,212	119	91%	948	383	71%
Woodside	41	115	-74	280%	41	0	100%
Unincorporated	1,680	2,013	-333	120%	1,550	130	92%
Total County	**16,305**	**9,388**	**6,917**	**58%**	**8,433**	**7,872**	**52%**

[a] *Housing permit data was calculated using Construction Industry Research Board records and covers the period 1999 to early 2006.*

[b] *Housing production figures were calculated from the California Department of Finance* ***E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark*** *and earlier versions of that report.*

San Mateo County had the lowest percentage of both production and permitting compared to its RHNA targets. Only a handful of the twenty cities in the county produced enough housing to surpass their targets. The two largest cities in the county, San Mateo and Redwood City, fell short of their RHNA goals by 1,100 units and 1,700 units, respectively.

Table 72: Santa Clara County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
Campbell	777	480	297	62%	587	190	76%
Cupertino	2,720	1,216	1,504	45%	3,165	-445	116%
Gilroy	3,746	2,709	1,037	72%	2,645	1,101	71%
Los Altos	261	422	-161	162%	69	192	26%
Los Altos Hills	83	207	-124	249%	209	-126	252%
Los Gatos	402	377	25	94%	324	78	81%
Milpitas	4,348	1,274	3,074	29%	1,156	3,192	27%
Monte Sereno	76	78	-2	103%	32	44	42%
Morgan Hill	2,484	1,699	785	68%	1,745	739	70%
Mountain View	3,423	1,137	2,286	33%	1,122	2,301	33%
Palo Alto	1,397	2,029	-632	145%	1,987	-590	142%
San Jose	26,114	24,400	1,714	93%	26,028	86	100%
Santa Clara	6,339	4,226	2,113	67%	3,995	2,344	63%
Saratoga	539	581	-42	108%	394	145	73%
Sunnyvale	3,836	1,719	2,117	45%	1,192	2,644	31%
Unincorporated	1,446	1,127	319	78%	-1,801	3,247	-125%
Total County	**57,991**	**43,681**	**14,310**	**75%**	**42,849**	**15,142**	**74%**

[a] *Housing permit data was calculated using Construction Industry Research Board records and covers the period 1999 to early 2006.*

[b] *Housing production figures were calculated from the California Department of Finance* ***E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark*** *and earlier versions of that report.*

While Santa Clara County's total production was 74 percent of the RHNA allocation, its total production since 1999 was over 42,000 housing units, the highest for any county. By producing over 26,000 units, the City of San José accounted for 61 percent of the county's total production.

Table 73: Solano County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
Benicia	413	657	-244	159%	506	-93	123%
Dixon	1,464	1,014	450	69%	807	657	55%
Fairfield	3,812	6,082	-2,270	160%	6,816	-3,004	179%
Rio Vista	1,391	1,569	-178	113%	1,689	-298	121%
Suisun City	1,004	920	84	92%	837	167	83%
Vacaville	4,636	3,733	903	81%	4,012	624	87%
Vallejo	3,242	3,279	-37	101%	2,865	377	88%
Unincorporated	2,719	409	2,310	15%	568	2,151	21%
Total County	**18,681**	**17,663**	**1,018**	**95%**	**18,100**	**581**	**97%**

[a] *Housing permit data was calculated using Construction Industry Research Board records and covers the period 1999 to early 2006.*

[b] *Housing production figures were calculated from the California Department of Finance* ***E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark*** *and earlier versions of that report.*

As with Sonoma county, a handful of cities pulled most of the weight in terms of essentially meeting the last allocation. Only Dixon and the unincorporated county performed poorly, with every other city meeting at least 80 percent of its allocation.

Table 74: Sonoma County	RHNA Allocation	Housing Permits Issued[a]	Allocation Minus Permits	Percent of Allocation Permitted	Housing Production[b]	Allocation Minus Production	Percent of Allocation Produced
Cloverdale	423	895	-472	212%	874	-451	207%
Cotati	567	453	114	80%	443	124	78%
Healdsburg	573	469	104	82%	569	4	99%
Petaluma	1,144	1,983	-839	173%	1,807	-663	158%
Rohnert Park	2,124	905	1,219	43%	733	1,391	35%
Santa Rosa	7,654	7,343	311	96%	6,764	890	88%
Sebastopol	274	145	129	53%	97	177	35%
Sonoma	684	704	-20	103%	500	184	73%
Windsor	2,071	1,728	343	83%	1,633	438	79%
Unincorporated	6,799	2,629	4,170	39%	1,455	5,344	21%
Total County	**22,313**	**17,254**	**5,059**	**77%**	**14,875**	**7,438**	**67%**

The Fourth RHNA Process 2007-2014

Working with a Housing Methodology Committee, that partly overlapped with the FOCUS TAC, and comprised of staff and elected officials, ABAG presented a number of possible policy based housing allocations for the fourth round of RHNA, encompassing the period between 2007 and 2014. Staff recommended that the Executive Board adopt a methodology that places some weight on proximity to transit.

In January 2006, the Housing Methodology Committee met to discuss alternative transit weights in the methodology. The draft allocation and the "no transit" alternatives were at the opposite ends of the spectrum in terms of a transit factor, and therefore have contrasting effects on the allocation. Many committee members endorsed the existing methodology as an expression of regional policy. The support for a no transit alternative came from the larger cities and developed suburbs. The larger cities countered that the allocation was too aggressive, and that the *Projections* forecast already promotes regional policies. They also commented that more mid-size cities in the region could do more to accommodate housing and that the responsibility should not be too heavily placed on relatively few cities. The lack of resources associated with developing housing, especially low income housing, was also cited as a reason the larger cities could not realistically accommodate the amount of housing assigned to them under the draft scenario. The staff recommendation for the reduced transit alternative is a balance between these two counter positions.

RHNA Methodology

In their recommendation, the HMC members considered local land use plans and policies, regional growth policies and the state's housing polices, as expressed in the state mandated RHNA objectives. The weighted factors in the allocation methodology, as adopted by ABAG's Executive Board, are:

- Household Growth, 45 percent;
- Employment Growth, 22.5 percent,
- Existing Employment, 22.5 percent
- Household Growth near Transit, 5 Percent;
- Employment Growth near Transit, 5 Percent

This adopted scenario reduces the weight of the transit factor in the methodology from the 10 percent weight it was given in the draft methodology. In addition, planned transit is removed from consideration. Only existing transit stations, fixed rail and ferry, are included. As a result, household growth, existing jobs and employment growth receive a greater weight in the allocation formula.

The effect of reducing transit's weight in the allocation and removing planned transit is that many jurisdictions with transit, including Oakland, San Francisco, Berkeley, Walnut Creek and similar cities, would see their allocations reduced over the draft method numbers. Allocations would go up in cities with high levels of expected household growth or where there are no or limited transit stations, including Brentwood, Antioch, Oakley, and the northern rural counties of Napa and Sonoma.

Because household growth is weighted more heavily in this scenario, jurisdictions with planned transit, their anticipated increase in household growth (household growth is weighted more heavily in this scenario) would offset any reduction that removing the planned transit option would have had. Therefore, most jurisdictions with planned transit would see their allocations go up over the draft allocation numbers. These jurisdictions include Brentwood, Antioch, and Oakley, and the northern rural counties of Sonoma.

MTC Smart Growth Policies

A number of regional programs sponsored by MTC are in place to provide incentives to TOD development and improve coordination between transportation and land use planning. MTC's TLC program, HIP program, and T-Plus program are available to support smart growth throughout the region. Working in concert with MTC, ABAG, through its FOCUS program will work to leverage these MTC programs in support of further TOD development.

In December 2003, MTC adopted a five point Transportation and Land Use Platform which will be integrated into the Transportation 2030 Plan. It is part of the implementation of the Smart Growth Strategy/Regional Livability Footprint and the "Network of Neighborhoods" scenario which emerged from the public workshops for that project.

The five points are:

- Develop a transportation/land use policy statement for the Transportation 2030 Plan
- Determine an appropriate percentage of the TLC/HIP program that should fund specific plan development around existing or near-term future rail stations or corridors
- Encourage changes to local general plans that support Transit-Oriented Development for Resolution 3434 investments
- Support transportation/land-use coordination beyond transit corridors
- Coordinate transportation/land-use issues with regional neighbors

MTC's TLC/HIP Program

MTC's Transportation for Livable Communities (TLC) Capital and Planning Program is designed to support community-based transportation projects enhancing their amenities and ambiance and making them places where people want to live, work and visit. TLC provides funding for projects that are developed through an inclusive community planning effort, provide for a range of transportation choices, and support connectivity between transportation investments and land uses.

The *Community Design Planning Program* funds community design and planning processes to retrofit existing neighborhoods, downtowns, commercial cores, and transit station areas and stops in order to create pedestrian, bicycle, and transit-friendly environments. The key objective of this program is to provide funding support to local governments, transportation agencies, and community-based organizations to explore innovative design concepts and plans through an inclusive, community-based planning process. MTC allocates Transportation Development Act (TDA) or Surface Transportation Program (STP) funds to this program. Up to $75,000 is available per project.

The *Capital Program* funds transportation infrastructure improvements to pedestrian, bicycle and transit facilities. Typical TLC capital projects include new or improved pedestrian facilities, bicycle facilities, transit access improvements, pedestrian plazas, and streetscapes.

MTC allocates federal STP or Congestion Mitigation and Air Quality (CMAQ) Improvements Program funds toward the capital project. Grant amount ranges from $500,000 to $3 million per project.

Most recently, MTC expanded its portfolio of programs that link transportation and land-use decisions by launching a *Housing Incentive Program* (HIP). The housing program is designed to maximize public investments in transit infrastructure and encourage transit use while also addressing the region's housing shortage.

A new program, called Transportation Planning and Land Use Solutions (T-PLUS), will be financed for three years, with annual grants totaling $1.35 million going to Congestion Management Agencies (CMAs) that sign onto the memoranda of understanding and funding agreements. Eight of the nine counties are participating in the first year of T-PLUS.

The general scope of work for T-PLUS focuses on four transportation/land use priorities for MTC:

- The Transportation for Livable Communities/Housing Incentives Programs (TLC/HIP)
- Smart Growth policy development and program implementation
- MTC Resolution 3434 planning and implementation
- Mitigation programs

MTC is encouraging workshops, the development of modeling tools and best practices "toolkits", and other incentives and strategies to implement the smart growth concepts adopted for the region.

MTC Resolution 3434 planning and implementation. Resolution 3434 focuses on transit corridors and regional transit policies, which need local actions such as transit-oriented development to be successful.

Transportation-related impacts can be reduced or offset with mitigation programs such as more extensive transit usage and ridesharing, and the use of mitigation banks.

Each CMA's approach to the new program, while having similar elements, is somewhat unique. Certain parts of the T-PLUS program will apply to all CMAs that participate; all will assist MTC with the monitoring and delivery of the TLC/HIP program, will provide an annual report to MTC, and are expected to address all four general areas to some degree. Beyond that, CMAs can tailor elements of the general workscope to fit their local needs and opportunities. 3434. TLC, RTP and TIP, Priority Development Areas and Priority Conservation Areas

Each of MTC's long-range plans has embodied its own unique strategy to respond to the long-range transportation needs of a dynamic and growing Bay Area region. When the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) instituted a requirement that RTPs be financially constrained (reaffirmed by successive legislation), RTP efforts became largely focused on identifying transportation investments that fit within the envelope of forecasted available revenues.

While this approach helps us to refrain from creating lengthy transportation wish lists, it also has its limitations because RTPs do not truly reflect the regions transportation system vision of future growth. In fact, previous financially constrained RTPs have devoted nearly 80

percent of available funding simply to maintain and operate the region's existing road and transit systems. As a result, previous RTPs have included a "vision element" to show the full array of expansion projects needed to address projected population and employment growth.

Since the 1994 RTP, MTC's RTP effort has focused on developing the financially constrained element first and vision element second. For example, the first phase of the Transportation 2030 Plan concluded with Commission approval of regional programs and projects for the financially constrained element of the plan. The second phase focused on local Congestion Management Agency (CMA) board approval of county projects for the financially constrained element of the plan. The final phase consisted of identifying remaining projects for the vision element and crafting Calls to Action for the plan. Staff propose a different, more holistic approach for the next long-range plan.

Proposed 2009 RTP Approach

For the first time, MTC will be using Smart Growth principles, as implemented in *Projections*, to prepare the 2009 Regional Transportation Plan (RTP). MTC staff is using a two-pronged approach for developing the RTP vision—(1) Land Use Strategy and (2) Financial Plan Strategy, as described below.

- **Land Use Strategy**: As ABAG's latest *Projections* 2007 continues to move us towards a "smart growth direction," MTC will consider how transportation investments can support this development and growth pattern. In keeping the momentum and progress made by initiatives such as MTC's hallmark Transit-Oriented Development Policy and the ABAG-led Focus Our Vision effort that is underway, staff proposed to fully assess the land use/transportation connection as part of the development of the 2009 RTP.
- Questions to address are: where will new housing be produced, what are the future growth patterns, how and where will people travel, what travel corridors will become heavily congested, how will travel demand and traffic congestion impact our air quality, and how can transportation policy not only serve this development but also influence the region in smart-growth directions beyond the policy-based smart growth *Projections*? The land use *Projections* would be based on ABAG's *Projections* 2007, and to the extent feasible, reflect the priority areas to be identified in *Focus Our Vision*.
- **Finance Plan Strategy**: MTC will prepare the 25-year RTP financial *Projections*, accounting for those revenues reasonably expected to be available to the region and potential new revenue sources. However, rather than focus our efforts on divvying up uncommitted funds for the financially constrained element of the plan, all decisions on how the RTP finances are invested would not occur until after the RTP vision is fully developed. So, in deciding where to invest and what specific new transportation programs/projects to advance in the plan, staff will consider how those investments best perform, respond to, and possibly reshape the assumed future growth patterns that underlie the plan.
- Further, staff may wish to consider transportation investments that serve priority development areas identified in Focus Our Vision effort, which advance the framework of *Projections* 2007 forecasts. Once staff establishes the RTP vision,

staff will then craft the program of projects for the financially constrained and vision elements of the plan.

Together, regional policies are working toward encouraging and incentivizing Smart Growth policies. Locally, the record in support of Smart Growth is mixed, with county electorates that have supported Smart Growth in the past continuing to support projects and policies that are consistent with the Vision. In other cases, voters opposed rail projects and growth measures that could potentially have an adverse effect on the future pattern of growth in the Bay Area. Ongoing efforts to observe how jurisdictions cope with their RHNA housing allocations against this background will useful in ground-truthing *Projections*.

Chapter 5: Countervailing Trends and Conclusions

With state, regional and local efforts driving toward a "smarter" future, it is important to identify countervailing trends and activities that may frustrate Bay Area efforts to grow in a manner consistent with the Vision and FOCUS. Public opposition to high density development, filtered through concerns about property values, traffic concerns and quality of life issues will persist and will complicate smart growth efforts. These "Not in my backyard" (NIMBY) arguments, however, are not the only factor that determines the ultimate success of the Vision and FOCUS.

Broadly speaking, there are several other factors that contribute to sprawl besides demand for large lot subdivisions. These factors are all in one sense or another, policy externalities. Policy externalities are the unintended consequences of policies aimed at addressing the challenges posed by a particular issue, but executed without accounting for negative impacts or the uncoordinated reactions of other jurisdictions. Underlying these policy externalities are factors that include the lack of strong and coordinated regional land use planning, the fiscalization of land use, ongoing and emergent trends in the location decisions of firms, and land use conflicts that derive from mixing uses that had been previously kept separate through single-use zoning regulation, such as the redevelopment of industrial lands with residential uses.

Consequently, policy externalities subvert the goals of both surrounding communities and the region as a whole. By law, California General Plans are required to be both internally consistent and vertically consistent, but not "horizontally" consistent. Internally consistent planning requires that General Plans contain no policy statements that are contradictory, while vertical consistency requirements stipulate that General Plans be consistent with applicable state and federal laws. Horizontal consistency would require coordination of land uses *between* jurisdictions.

Lack of regional coordination of Land Use decisions

While there are many potential planning issues that suggest the need for regional coordination, the overall balance of land uses along transit corridors is one issue that is of particular relevance to *Projections*, RHNA, and FOCUS. In particular, jobs-housing balance along each corridor would facilitate progress toward regional goals of reducing vehicle trips. Since corridors are conduits for journey to work trips, ensuring that there is an overall balance between residential uses and employment space, along with adequate retail service oriented uses, requires coordination of land uses. Coordination, it is important to note, does not mean control.

Because of the fiscalization of land use, discussed in greater detail below, NIMBYism, Home Rule imperatives and so on, there is little incentive for local governments to ensure that the mix of land uses in another jurisdiction but along the same transit corridor is balanced. While LAFCOs provide a forum for annexation issues, by design their ability to further the coordination of land uses is limited.

Planning in a vacuum: do local efforts cancel each other out?

Sprawl is a pattern of scattered and uncoordinated urban development characterized by growth that emphasizes low-density single-family tract housing, strip malls and office parks, in single-use or hierarchically more restrictive zoning districts. These zoning districts and their allowed uses are interconnected by road networks that by design and by virtue of economies of scale subordinate public transportation to privately owned automobiles.

While the literature on sprawl is broad, covering many aspects of its spatial characteristics of sprawl, its social and fiscal pathologies, and its causes, a recurring theme in addressing the policy dimensions of sprawl is the role of political fragmentation in aiding and abetting the advance of sprawl (Carruthers and Ulfarsson 2002). With political fragmentation, unincorporated subdivisions form new cities and adopt plans and regulations that conform to local perceptions of the qualities of good development, but do not take into account a regional perspective and consider how those regulations affect surrounding communities.

Practiced without consideration of adjacent extra-jurisdictional land-uses and policy externalities, growth management policies used by one city may even have adverse impacts on nearby cities. For example, one researcher found that Bay Area cities that have adopted urban growth boundaries displaced development to cities with less strict development regulations during the 1980s (Shen 1996). More recently, John Landis has found that Rohnert Park, with an adopted annexation limit, experienced only 60 percent of the growth level of nearby cities between 1990 and 2000 (2006), providing evidence of a squeezing out effect.

There have been several assessments of the implementation of Smart Growth type policies in the last few years. Two surveys, conducted by ABAG and by Greenbelt Alliance separately, questioned city and county staff about their respective jurisdictions' adoption of various Smart Growth policies. To date, the analysis of these policies has taken an approach where each policy is treated as independent of the others. Greenbelt Alliance even structured their report so that adoption of Smart Growth policies can be treated additively to achieve a score, which then facilitates the ranking of cities in order of their affinity for Smart Growth.

While the Greenbelt study and the ABAG survey are very important and useful, it also useful to reflect upon how land use policies interact. For example, let us say that there is a city with about 30,000 dwelling units. Within its LAFCO determined unincorporated Sphere of Influence there is a potential for about another 20,000 units, if the same residential densities are applied to the area in the unincorporated area once it is annexed. Let us further say that the city adopts a permanent Urban Growth Boundary (UGB) that leaves the potential for eventually growing by another 10,000 units but ensures that the other putative 10,000 units will never materialize.

Even though the adoption of a UGB may in fact slow or even prevent the development of farmland or open space, without a concurrent policy that raises the average residential density within the city that accounts for those "missing" 10,000 units, the city may in fact be pursuing an exclusionary housing policy, deliberately or not.

According to the Greenbelt Alliance study, twenty-five Bay Area cities have adopted Urban Growth Boundaries. While these cities may be implementing a program that is most successful in terms of the timing and compactness of future development over time, unless those growth boundaries are coordinated with nearby cities, Smart Growth techniques may just be a recipe for leapfrog development.

Fiscalization of Land Use

With the passing of Proposition 13 in 1978, profound changes in the fiscal wellbeing of cities and counties swept through California. Enacted in response to steeply increasing property taxes, Proposition 13 prompted many local governments to think strategically about land use decisions in terms of their financial yield. With many local government revenue streams constrained by caps and dedicated to specific purposes, local governments began to adopt policies that promoted retail sales within their respective jurisdictions, which contributed about 20 percent of annual general fund revenue (Lewis 2001). While this percentage is clearly not the dominant feature of a local budget, it is a significant and largely unencumbered source of local government revenue.

Accordingly, retail is the most desired land use among city managers, as reported in a 1998 survey of local development priorities, conducted by the Public Policy Institute of California (PPIC). PPIC found that retail uses would most likely gain official support for incentives, rezoning applications and General Plan amendments, among other actions to encourage those uses. PPIC also found that Bay Area officials led the state in their pessimism about the availability of vacant land in their respective jurisdictions.

With only 19 percent of Bay Area respondents in the PPIC survey saying that there was a "considerable" amount of vacant land for development, 32 percent responded that there was a "limited" amount of land, and 49 percent responded that there was "little or no" vacant land (Lewis and Barbour, 1998). Between the "zero-sum" constraints offered by single-use zoning, interest in more retail development and the lack of vacant land, city officials will continue to prefer retail oriented land uses over other uses.

Given the fiscal footing given land use decisions, local governments recognized that residential development generates more demand for public services, such as schools, than commercial operations. Because local governments found themselves even more dependent upon sales tax revenue, local governments favored more retail development and raised exactions on residential development. Local governments also sought to capture retail taxes through the development of shopping centers and other high concentrations of retail.

In some sense, those "sales tax canyons" were designed to serve populations greater than in the shopping centers' jurisdictions, "poaching" shoppers from neighboring cities (Fulton 1997). Consequently, competition for retail development among cities went up, while there was a decline in housing production as the fiscalization of land use intensified. Competition for retail leads to at least two negative consequences—loss of potentially higher wage jobs and the deconcentration of sales taxes, yielding weakened inner city finances.

Both of these consequences are products of land use decisions in which some uses are "over-zoned" and others are "under-zoned" (Lewis 2001). Decisions that benefit retailers may come at the cost of firms such as light industrial enterprises, which pay higher wages, but do not pay much in local taxes (Schrag 1998). Given the greater land-use decision flexibility of cities with relatively more vacant land, a region where retail demand is more or less fixed will experience deconcentration of retail activities to the financial detriment of older core cities. Cities that are poorly served by retail may find it more difficult to attract high wage paying jobs as well.

There is no sign that Proposition 13 will be repealed in the near future. Through FOCUS and the coordinated use of infrastructure bonds, local governments may be able to accommodate more of the demand for housing and for services with more intense development of station areas and corridors.

Firm Location Decision Trends

Small innovations or changes in business practices open the door to large scale economic consequences. In 1956, for example, containerized shipping was introduced to the United States. Within a few years, there were monumental shifts in terms of labor and where port activity took place because some ports were better positioned to deploy new technology, such as the Port of Oakland, to the detriment of the Port of San Francisco. Since the 1980s, there has been an increasing trend toward deindustrialization throughout the United States, hurting the Midwest most of all, but with ripple effects affecting other regions of the country.

As an integral part of the US and global economies, the Bay Area is subject to the same trends in industry employment patterns and firm location decisions as other parts of the US. Both employment trends and firm location decisions impact the shape and content of the urban footprint in the region.

Demand for contract workers means that there must be space that can be flexible with respect to office configurations, and that there must also be an adequate supply of rental housing to meet demand. Both "flex-space" and rental apartments are unequally distributed across the Bay Area, making both commercial and residential market absorption more dependent upon an adequate and varied inventory of office and residential development.

Suburbanization has also driven changes in the economic landscape. Suburbs drew retailers outside of the city core, and they were followed by back-office kinds of operations willing to employ suburban housewives. The lure of jobs in the suburbs helped to propel further suburbanization.

Today there are similar trends with deindustrialization and shifts in freight movement business practices. Shifting intermodal facilities to exurban areas, freight movers do not have to compete, as the Goods Movement discussion below describes in greater detail, with residential land uses.

Conversely, it is true that financial and professional services, major employment sectors, along with software and hardware makers, benefit from the agglomeration economies in downtown San Francisco or Silicon Valley. Achieving Smart Growth goals will depend on accommodating shifts in demand for space by the most important drivers of the economy.

Industrial Land Redevelopment Frictions with Residential Uses

While Smart Growth principles promote a more compact land-use pattern in the Bay Area, competition for the limited amount of available land brings freight related land-uses and increasing Bayside residential development into potential conflict. Aside from direct competition for land, normal industrial activities generate off-site impacts on nearby residential uses through freight movement and site related nuisances.

Consequently, new residential developments may experience difficulties in attracting permanent residents. Industrial enterprises may also find that ongoing conflict with new residents may limit their future operations.

Even though we use two Oakland sites as examples, the Jack London Square area and the Port of Oakland, there are in fact many other cases throughout the Bay Area.

Most industrial areas are located along the I-80/880 corridor in the Inner East Bay, around the southern parts of the Bay in Santa Clara, in northern San Mateo and in San Francisco. Newer industrial and warehouse space appears in more outlying parts of the region such as the I-80 corridor in Solano, near Highway 101 in Sonoma and in the Livermore/Tri-Valley area along I-580. Much of the new residential development in the Bay Area is occurring inside and along the I-80/880 corridor.

Because physical site characteristics such as relatively flat and large parcels of land with proximity to major arterials and employment centers are appealing as locations for both residential and industrial uses, these uses compete for the limited available land in the Bay area. When residential and industrial uses are located near to each other, there may be compatibility issues that emerge from sharing the same road network, along with noises, odors, hazardous materials and high-intensity lighting. Moreover, since many of the available parcels are redevelopment properties, many sites considered for reuse as residential development are located in the midst of existing industrial and warehouse uses. The potential of infill redevelopment projects may be limited if they are developed adjacent to incompatible uses.

Given these factors, industrial operations may adversely impact the current trend toward higher residential densities within the I-80/880 corridor. Even with the implementation of site design standards affecting truck routes, parking and other site development techniques to mitigate industrial nuisances, permanent residents may be reluctant to locate along the industrial-residential seam line.

Ultimately, at every site where there is competition for land between industrial and residential development, the prevailing land-use trend in the vicinity may be decisive. For example, even with property owner preferences for one use over another, market forces tend to turnover industrial and warehouse uses to higher value uses with increasing demand since industrial uses yield low rents and property values per square foot. On the other hand, the lack of amenities and services, especially in an area perceived to be normatively industrial, makes residential development riskier than in suburban areas.

Case Studies

The following two case studies are examples of the diversity of Bay Area land-use mixes and the role that contending demand for land between residential and industrial/goods movement uses plays in anticipating future development.

Jack London Square (Census Tracts 4032, 4033)

These tracts comprise 314 Acres

Table 75:	2005	2015	2030
Employment	11,652	12,697	13,673
Job-land Acres	227	233	234
Households	1,223	1,886	2,694
Residential Acres	42	57	64
Residential Density	29 du/acre	33 du/acre	42 du/acre
Developed Acres	269	290	298
Percent Developed	86%	92%	95%

Given its highly desirable location along Oakland's waterfront, the Jack London Square area is anticipated to see continued growth in employment and rapid growth in residential development over the next quarter century. Sustaining this growth requires continuing densification of both commercial/industrial land and residential land. Achieving the required density, however, may require consolidation of the currently highly fragmented pattern of land uses within the Jack London Square area. With small lot sizes, small city block sizes and the proximity of incompatible land-uses, redevelopment of land with greater densities may be constrained by an inability to achieve the necessary building masses to support those higher densities.

Since office workers typically require far less space per employee than industrial workers, increased employment density will be supported by an anticipated greater share of office jobs by 2030. Even so, the share of industrial workers is anticipated to decline to 41% of the workforce in 2030 (as compared to 57% in 2000).

While *Projections* estimates are reasonable, the City of Oakland's recent efforts to smooth over potential land-use conflicts must be observed over time to see to what extent redevelopment of the area around Jack London will allow for both residential and industrial uses.

Port of Oakland Area (Census Tracts 4017, 4018, 4019, 4020)

These tracts comprise 2,679 Acres

Table 76:	2005	2015	2030
Employment	10,485	12,233	16,191
Job-land Acres	2,033	2,062	2,099
Households	1,497	2,366	3,508
Residential Acres	104	142	180
Residential Density	14 du/acre	17 du/acre	19 du/acre
Developed Acres	2,137	2,204	2,279
Percent Developed	79%	82%	85%

While the Port of Oakland comprises a very large area in west Oakland, much of the current debate about land in this area surrounds potential future uses such as office, industrial or even retail uses for the Oakland army base. The Oakland Army Base ("OARB") Redevelopment Area comprises the 425 acre former Oakland Army Base, plus adjacent areas, containing

approximately 1,800 acres. East of the army base site, across I-880, is an area comprised largely of industrial and transportation related uses and a large tract of land that is being redeveloped for residential purposes.

This tract, the former Wood Street AMTRAK station area, will contain 1,557 housing units once construction is completed. Between 2005 and 2030, ABAG anticipates the area's census tracts to add another 2,011 households. With the complete build-out and occupancy of the Wood street units, the study area will need to add approximately 454 units to meet *Projections* 2005 estimates of area population. While there are some tracts of vacant residential land in the vicinity, those tracts are squeezed between major limited access transportation facilities and adjoining industrial uses. It is possible that with increasing demand for residential uses, these tracts may be successfully developed. On the other hand, without significant retail support and substantial buffering from nuisances emanating from ongoing adjacent industrial uses, demand for those residential units may be low.

Conclusions and future directions

Overall, there is plenty of room to accommodate housing growth within corridors in the Bay Area through 2030. While some parts of the Bay Area clearly have more capacity than others, through planning and redevelopment most of the areas that appeared to have capacity deficits could contain more housing. Unfortunately, the existence of planned capacity is not enough to ensure development will occur at the densities *Projections* implies. Over time, there will be opportunities to redevelop station areas, at higher densities, but rarely on a very large scale that would make a very big difference in terms of closing large gaps between individual station areas and the projected dwelling units for those areas.

Even with a relatively long projection horizon, many local officials express doubts about the abilities of their respective jurisdictions to absorb the demand that *Projections* envisions. According to a survey sent to city managers in December 1998, 49 percent of cities in the Bay indicated there was little or no vacant land left to develop, while another 32 percent said that the supply of land was "limited." More recently, comments submitted to ABAG with respect to the draft RHNA allocation indicate that officials still largely believe the supply of available land is quite constrained. Nevertheless, almost 186,000 housing permits were issued between 1998 and 2005. At a rate of 26,570 units permitted a year, the data do not support the reported attitudes of city managers.

Chapter 6: Regional Indicators

The quality of life, the economic vitality, and the costs of living here for existing residents and the challenges facing new residents are greatly influenced by the actions of local governments throughout the Bay Area. In the absence of regionally coordinated land-use decision making, ABAG can serve the Bay Area as a forum in which we ask: "how are we doing as a region?"

The question should be answered in terms of scale, scope and timing that is appropriate for neighborhoods, local governments, and the region as a whole. Some changes are noticed over the course of a year in neighborhoods, such as new residential development, other changes are not directly perceptible at the neighborhood level, such as the closing of a far away manufacturing plant and the "downsizing" of its employees. Even though neighborhood residents may not have worked in a now closed factory, subsequent loss of city revenue may lead to drops in the levels of service for some facilities, and the deterioration in levels of service may be noticed throughout the city.

Just as neighborhood level impacts affect adjacent neighborhoods, local impacts "filter up" and influence conditions throughout the region. At the regional level, the macroeconomic indicators of employment, the availability of housing or household income provide important contextual information for understanding local trends.

Given ABAG's advisory and research role, the Agency can contribute to meeting regional goals by monitoring local activity, highlighting changes in statistical indicators at the appropriate level of geography and time interval between data collection periods.

Generally, there are three levels of geography that a robust indicators report should include:

- Neighborhoods
- Corridors, and
- The Region as a whole

At the neighborhood level, Galster, Hayes and Johnson (2005) have produced a matrix of "robust, parsimonious neighborhood indicators [of neighborhood wellbeing]" which can be maintained and updated on a regular and relatively inexpensive basis. Using a combination of factor analysis and regression techniques, the Galster et al identified five neighborhood indicators for Oakland (among other cities they also identified another factor, prestige), which would be useful for planners at the local and regional level to use in tracking the impacts of community change.

Summarized in the following table, the indicators on the left hand side are easily obtainable from public published sources. Some data may require purchase, but costs should be low. In any case, these indicators were identified as useful metrics for the following four dimensions of neighborhood wellbeing:

- Levels of social disadvantage
- Long term residence in the neighborhood (Housing Type & Tenure)
- Employment
- Vacancy Rates

These four indicators frame the quality of neighborhoods in terms of concentrations of poverty (levels of social disadvantage), measures of social capital (housing type and tenure), economic indicators (employment) and an indicator of change in the community (vacancy rates). In the following table, specific variables are identified that provide information about each of the four dimensions of neighborhood wellbeing.

Table 77	Social Disadvantage	Housing Type & Tenure	Business & Employment	Housing Vacancy
Mortgage Approval rate	√			
Number of loan application records		√		
Median Loan amount	√	√		√
Home improvement as % of original price	√			
Median Home Price	√	√		
Number of Businesses			√	
Number of Jobs			√	
Sales			√	

Source: Galster et al, 2005. Table A7d.

Data for these indicators can be obtained through Home Mortgage Disclosure Act on mortgage approval rates, loan amounts and applications, median home sales data can be obtained from DataQuick as well as Dunn and Bradstreet data for business activity.

Because neighborhoods are the constituent elements of corridors, the same indicators can be collected for corridors or simply aggregated at the corridor level. Corridor indicators can also be supplemented by information derived from the Existing Land Use database as it is updated over time with information about new development projects.

With respect to the region as a whole, there are both directly observed indicators that are collected frequently and then there are modeled indicators that are generated inferentially

from both observed indicators and modeled probabilistic factors. Principally, regional indicators ought to reflect the following action oriented policies:

- The efficient use of transportation facilities and other infrastructure;
- The provision of more affordable housing choices;
- The revitalization of older neighborhoods, towns, and cities;
- The retention of agricultural land, sensitive habitats, and open space;
- The conservation of natural resources, including energy and water;
- The protection of local and global environments;

For each policy area, staff has identified certain indicators that can be useful as regional indicators. They are as follows:

Transportation and Infrastructure Efficiency
Share of households and jobs within walking distance of transit service;
Share of households within walking distance of employment and retail centers;
Average commute travel distance;
Average shopping travel distance;
Non-automobile mode split;
Daily vehicle miles traveled per household;
Daily vehicle hours of delay;
Home to work travel times;
Share of households on municipal water and sewer;
School capacity surpluses and deficits.

Affordable Housing Choices
Housing stock and housing flow by affordability category (e.g., market, moderate-income, low-income, and very-low income);
Median price for single-family home;
Median price for condominium by number of bedrooms;
Median rent for apartment by number of bedrooms.

Community Revitalization
Population, household, employment and income distribution by place type;
Sales tax revenue by place type.

Land Conservation
Annual consumption of previously undeveloped land by type;
Percent of housing units constructed on infill sites;
Overall housing density;
Jobs filled by people residing outside the region.

Conservation of Natural Resources
Daily water consumption per household;
Daily energy (electricity, natural gas, and motive fuel) consumption per household .

Protection of Local and Global Environments
Ozone and particulate matter levels;

Greenhouse gas emissions;
Brownfield inventory;

Quality of Life/Equity
Access to services for households and communities of concern;
Replacement/displacement ratio;
Diversity index;
Individuals, households and children in poverty

A biennial State of the Region report will provide additional data about regional trends, but will be issued in opposing years to the publication of the Monitoring report. In this way, staff will monitor both land use policies and patterns and the macroeconomic and social leading indicators that will be essential in "steering" *Projections* over future editions, and will also be useful as policy data references.

Appendix A: Bay Area Monitoring Corridors

ACE TRAIN STATIONS

- Great America
- Fremont
- Lathrop/Manteca
- Livermore
- Pleasanton
- San Jose
- Santa Clara
- Stockton
- Tracy
- Vasco

BART

Existing Stations:

- Alameda County
  - 19th Street/Oakland
  - Ashby
  - Bay Fair
  - Castro Valley
  - Coliseum/Oakland Airport
  - Downtown Berkeley
  - Dublin/Pleasanton
  - Fremont
  - Fruitvale
  - Hayward
  - Lake Merritt
  - MacArthur
  - Oakland City Center/12th Street
  - Rockridge
  - San Leandro
  - South Hayward
  - Union City
  - West Oakland

- Contra Costa County
  - Concord
  - Lafayette
  - North Concord/Martinez
  - Orinda

- Pittsburg/Bay Point
- Pleasant Hill
- Walnut Creek

o San Mateo County
- Daley City
- Colma
- Millbrae
- San Bruno
- San Francisco International Airport
- South San Francisco

o San Francisco County
- 16th Street Mission
- 24th Street Mission
- Balboa Park
- Civic Center
- Embarcadero
- Glen Park
- Montgomery Street
- Powell Street

BART TO SAN JOSE PROPOSED STATIONS)

- Alum Rock
- Berryessa
- Calaveras
- Civic Plaza/SJSU
- Irvington
- Market Street
- Montague/Capital
- Santa Clara
- Warm Springs

CALTRAIN STATIONS

- 22nd Street
- Atherton
- Bay Meadows
- Bay Shores
- Belmont
- Blossom Hill
- Broadway
- Burlingame
- California Avenue
- Capital

- College Park
- Gilroy
- Hayward Park
- Hillsdale
- Lawrence
- Menlo Park
- Millbrae
- Morgan Hill
- Mountain View
- Palo Alto
- Paul Avenue
- Redwood City
- San Antonio
- San Bruno
- San Carlos
- San Francisco
- San Jose
- San Martin
- San Mateo
- Santa Clara
- South San Francisco
- Stanford
- Sunnyvale
- Tamien

CAPITAL CORRIDOR (EXISTING AMTRAK RAIL SERVICE)

Stations

- Auburn
- Berkeley
- Colfax
- Davis
- Emeryville
- Fremont/Centerville
- Hayward
- Martinez
- Oakland (Jack London Square)
- Oakland Coliseum
- Richmond/BART
- Rocklin
- Roseville
- Sacramento
- San Francisco

- San Jose/Caltrain
- Santa Clara/Great America
- Suisun/Fairfield

CAPITOLS RAIL

- Dixon/AMTRAK
- Fairfield/Travis AFB
- Fairfield/AMTRAK
- Benicia/Lake Herman
- Martinez/AMTRAK
- Hercules/San Pablo Avenue
- Richmond/BART
- Berkeley/AMTRAK
- Emeryville/AMTRAK
- Oakland/Embarcadero
- Oakland Coliseum
- Hayward/AMTRAK
- Union City/BART
- Fremont/Centerville AMTRAK
- San Jose/Downtown
- Santa Clara/AMTRAK

DUMBARTON RAIL

- Dumbarton
- Menlo Park
- Newark/Dumbarton
- Redwood City/Caltrain

EAST 14TH STREET/INTERNATIONAL BOULEVARD

- From: Wood (Oakland) to Highway 238 (San Leandro).

Jurisdictions:

Alameda County
- Oakland
- San Leandro
- Unincorporated Alameda County

eBART (PROPOSED STATIONS)

- Antioch
- Antioch/Hillcrest Avenue
- Brentwood
- Byron
- Oakley/Empire Avenue – South Neroly Road
- Pittsburg

EL CAMINO REAL

- From: East Market Street (Daley City) to Sand Hill Road (Palo Alto)

Jurisdictions:

- San Mateo County
- Daly City
- Colma
- San Bruno
- Milbrea
- Burlingame
- Hillborough
- San Mateo
- Belmont
- San Carlos
- Redwood City
- Atherton
- Menlo Park
- Palo Alto

FERRY TERMINALS

- Alameda Gateway
- Alcatraz
- Angel Island
- Golden Gate Larkspur
- Golden Gate Sausalito
- Jack London Square
- Mare Island
- Mecartney
- San Francisco
- Tiburon

MUNI LIGHT RAIL STATIONS

- 2nd Street & King
- 4th Street & King (Caltrain Station)
- Balboa Park
- Brannan & Embarcadero
- Broad & Plymouth
- Carl & Cole
- Castro
- Church
- Church & 18th
- Church & 24th
- Church & 30th
- City College
- Civic Center
- Duboce & Church
- Duboce Park/Duboce & Noe
- Embarcadero
- Folsom & Embarcadero
- Forest Hill
- Glen Park
- Judah & 9th Avenue
- Judah & 19th Avenue
- Judah & Sunset
- Junipero Serra & Ocean
- Montgomery
- Ocean Beach
- Ocean & Jules
- Powell
- Randolph & 19th Avenue
- Randolph & Arch
- San Jose & Geneva
- SF State
- St. Francis Circle
- SF Zoo
- Stonestown
- Taraval & 22nd Avenue
- Taraval & Sunset
- UCSF
- Van Ness

SAN PABLO AVENUE

- From: East 14th Street and Broadway (Oakland) to Willow Avenue (Hercules)

Jurisdictions:

Contra Costa County
El Cerrito
Hercules
Pinole
Richmond
San Pablo
Alameda County
Albany
Berkeley
Emeryville
Oakland

SMART (PROPOSED STATIONS)

- Cloverdale
- Cotati
- Downtown San Rafael
- Healdsburg
- Larkspur/Kentfield/Larkspur Landing
- North Novato
- North San Rafael/Northgate Mall
- Petaluma
- Rohnert Park
- Santa Rosa
- South Novato
- Windsor

VTA LIGHT RAIL STATIONS

- Almaden
- Alum Rock
- Bascom
- Baypoint
- Bayshore/NASA
- Berryessa
- Blossom Hill
- Bonaventura
- Borregas
- Branham
- Capital
- Champion
- Children's Discovery Museum

- Cisco Way
- Civic Center
- Component
- Convention Center
- Cottle
- Cropley
- Crossman
- Curtner
- Downtown Campbell
- Downtown Mountain View
- Evelyn
- Fair Oaks
- Fruitdale
- Gish
- Great America
- Great Mall/Main
- Hamilton
- Hostetter
- I-880/Milpitas
- Japantown/Ayer
- Karina
- Lick Mill
- Lockheed Martin
- Metro/Airport
- McKee
- Middlefield
- Moffett Park
- Montague
- Oakridge
- Ohlone/Chynoweth
- Old Ironsides
- Orchard
- Paseo de San Antonio
- Penitencia Creek
- Race
- Reamwood
- River Oaks
- San Fernando
- San Jose Diridon
- Santa Clara
- Santa Teresa
- Snell
- St. James
- Tamien
- Tasman

- Vienna
- Virginia
- Whisman
- Winchester

Appendix B: General Plans — Last Updated	LAND USE	HOUSING
ALAMEDA COUNTY		
Alameda	1991	1991
Albany	1992	1992
Berkeley	2001	2001
Dublin	1992	2003
Emeryville	1993	2001
Fremont	1996	2003
Hayward	2002	2002
Livermore	1998	1999
Newark	1992	2002
Oakland	1998	1992
Piedmont	1996	2002
Pleasanton	1996	1996
San Leandro	2002	2002
Union City	2002	2002
Alameda County	2002	2002
CONTRA COSTA COUNTY		
Antioch	1988	1992
Brentwood	2001	1998
Clayton	2001	2001
Concord	2001	2003
Danville	1999	2001
El Cerrito	1999	1999
Hercules	1998	2003
Lafayette	2002	2002
Martinez	1995	1995
Moraga	2002	2002
Oakley	1996	1996
Orinda	1989	1991
Pinole	1995	2003
Pittsburg	2001	1994
Pleasant Hill	2003	2003
Richmond	1998	1994
San Pablo	1996	2002
San Ramon	2002	2002
Walnut Creek	1993	1994
Contra Costa County	1996	2001

	LAND USE	HOUSING
MARIN COUNTY		
Belvedere	1994	1994
Corte Madera	1992	2002
Fairfax	1987	1990

Larkspur	1990	1990
Mill Valley	2002	2003
Novato	1996	1996
Ross	1988	1988
San Anselmo	1995	1995
San Rafael	1996	1996
Sausalito	1995	1995
Tiburon	1990	1994
Marin County	1994	1994
NAPA COUNTY		
American Canyon	1994	1994
Calistoga	2003	2003
Napa	1998	2001
St. Helena	1993	2002
Yountville	2001	2002
Napa County	1999	1996
SAN FRANCISCO COUNTY		
San Francisco	1997	1992

	LAND USE	**HOUSING**
SAN MATEO COUNTY		
Atherton	1990	1991
Belmont	1982	2002
Brisbane	1994	2002
Burlingame	1969	2002
Colma	1999	1999
Daly City	1987	1996
East Palo Alto	1999	1999
Foster City	1999	2001
Half Moon Bay	1993	1994
Hillsborough	1995	2002
Menlo Park	1994	1992
Millbrae	1998	1998
Pacifica	1988	1992
Portola Valley	1998	1998
Redwood City	1990	1993
San Bruno	1984	2001
San Carlos	1994	2001
San Mateo	1997	2002
South San Francisco	1999	1992
Woodside	1988	2001
San Mateo County	1986	1992
SANTA CLARA COUNTY		
Campbell	2001	2001
Cupertino	2001	2001
Gilroy	2002	2002
Los Altos	2002	2001

Los Altos Hills	1994	2002
Los Gatos	2000	2002
Milpitas	2002	2002
Monte Sereno	1996	1996
Morgan Hill	2001	2001
Mountain View	1995	2002
Palo Alto	1998	2002
San Jose	2003	2003
Santa Clara	2002	2002
Saratoga	1983	2002
Sunnyvale	1997	2002
Santa Clara County	1995	2003

	LAND USE	HOUSING
SOLANO COUNTY		
Benicia	1999	2003
Dixon	1994	2002
Fairfield	2002	2002
Rio Vista	2001	2001
Suisun City	1992	1992
Vacaville	1999	2001
Vallejo	1999	2001
Solano County	1999	1992
SONOMA COUNTY		
Cloverdale	1992	2002
Cotati	1998	1998
Healdsburg	2002	2002
Petaluma	1999	2002
Rohnert Park	2000	2001
Santa Rosa	2002	2003
Sebastopol	1994	2003
Sonoma	1995	1995
Windsor	2000	2002
Sonoma County	1998	2002

Sources

Brownstone, David and Arthur De Vany. 1991. "Zoning, Returns to Scale, and the Value of Undeveloped Land" *The Review of Economics and Statistics*. 73, No. 4, 699-704.

Carruthers, John, and Gunther Ulfarsson. 2002. Fragmentation and sprawl: Evidence from interregional analysis. *Growth and Change* 33:312-340

Cervero, Robert and Michael Duncan. 2001. "Transit's Value-Added: Effects of Light and Commuter Rail Services on Commercial Land Values." Berkeley: University of California.

Colwell, Peter F. and Henry J. Munneke. 1997. "The Structure of Urban Land Prices." *Journal of Urban Economics* 41, 321-336.

Colwell, Peter F. and C.F. Sirmans. 1978. "Area, Time, Centrality and the Value of Urban Land." *Land Economics*, 54, No.4, 514-519.

Dawkins, Casey J. and Arthur C. Nelson, State Growth Management Programs and Central City Revitalization. *Journal of the American Planning Association*, Autumn 2003, Vol 69 No 4.

Dunphy, Robert T., Robert Cervero, Frederick C. Dock, Maureen McAvey, Douglas R. Porter, Carol J. Swenson. 2004. *Developing Around Transit: Strategies and Solutions That Work*. Washington, DC: Urban Land Institute.

Fulton, William. 1997. *The Reluctant Metropolis: The Politics of urban growth in Los Angeles*. Point Arena, CA: Solano Press.

Fulton, William, and Paul Shigley. 2005. *Guide to California Planning*. Third Edition. Point Arena, CA: Solano Press.

Galster, George, Chris Hayes, and Jennifer Johnson. 2005. "Identifying Robust, Parsimonious Neighborhood Indicators." *Journal of Planning Education and Research*.

Knaap, Gerrit, J., Chengri Ding, and Lewis D. Hopkins. 2001. "Do Plans Matter?: The Effects of Light Rail Plans on Land Values in Station Areas." *Journal of Planning Education and Research*. 21: 32.

Landis, John. 2006. "Growth Management Revisited: A Reassessment of its Efficacy, Price Effects and Impacts on Metropolitan Growth Patterns." *Journal of the American Planning Association*.

Lewis, Paul G. 2001. "Retail Politics: Local Sales Taxes and the Fiscalization of Land Use," *Economic Development Quarterly*, vol. 15, no.1: 21-35

Lewis, Paul G. and Elisa Barbour. 1998. "Development Priorities in California Cities: Results from a PPIC Survey." San Francisco: Public Policy Institute of California.

Nelson, Arthur C. 1988. "An Empirical Note on How Regional Containment Policy Influences an Interaction between Greenbelt and Exurban Land Markets." *Journal of the American Planning Association*.

Nelson/Nygaard Associates et al. 2006. "MTC's Resolution 3434 Transit-Oriented Development Policy. Interim Evaluation."

San Francisco Planning Department. 2005. "Eastern Neighborhoods Proposed Permanent Zoning Controls: An Overview."

Schrag, Peter. 1998. *Paradise Lost: California's Experience, America's Future*. New York: New Press.

Shen, Qing. 1996, "Spatial impacts of locally enacted growth controls: the San Francisco Bay Region in the 1980s" *Environment and Planning B: Planning and Design* 23(1)61-91

Shigley, Paul. 2006. "Election results hold surprises: growth-control measures lose in Bay Area, but so do housing projects." 21.12 (December 2006) *California Planning & Development Report*

Smith, Jeffrey J., and Thomas A. Gihring. 2006. "Financing transit systems through value capture: an annotated bibliography." *The American Journal of Economics and Sociology*. 65, 3.

Washington State Department of Community, Trade, and Economic Development. 2004. "Urban Densities—Central Puget Sound Edition Guidance paper." Seattle.

Wassmer, Robert W. 2002. "Influences of the 'Fiscalization of Land Use' and Urban-Growth Boundaries." Sacramento: Senate Office of Research.